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Edited by HENRY C. PEARSON—Offices, No. 150 Nassau Street, NEW YORK.

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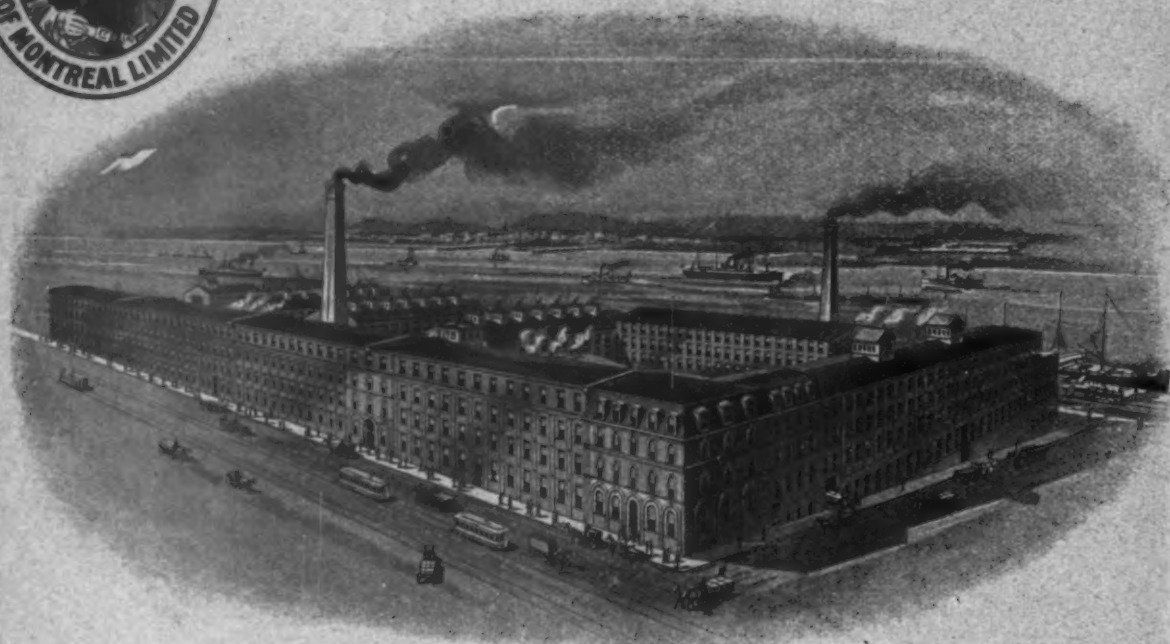
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RUBBER IN MEXICO AND ELSEWHERE.

THE more recent references to rubber cultivation in THE INDIA RUBBER WORLD have been devoted principally to the work in progress in the Far East, for the reason that such work is more advanced there than in any other region, and more definite results have been attained. But with all the advance there, and all the success actual and prospective, the product of the Eastern plantations cannot for years to come form a large percentage of the world's total production of rubber, or lower materially the price level of crude rubber. These results, however, are already of a character to prove beyond doubt the possibility of producing good rubber under cultivation, under conditions which render its production more profitable than any other form of agriculture to-day, while it is asserted by Ceylon planters of long experience that the growing of rubber would be distinctly profitable even at half the prices now obtained. To our minds the experience of the Far Eastern planters thus far should prove most encouraging to those who have engaged in rubber culture elsewhere under proper conditions.

To come nearer home, without doubt the question of rubber planting, in the minds of the American public, has become involved with some doubt, due first to the element of impatience for commercial results from the investments made in Mexico, though the initial attempts there to plant rubber systematically were not made until years after the pioneer work in Ceylon. The beginnings in Mexico, by the way, were quite independent of any work in progress in any other country. They related to a different species from those planted in the Far East, and labor and other conditions were so different that the experience gained in the latter region was not such as to render direct assistance to planters in Mexico. The Mexican enterprises in rubber planting, therefore, have been developed very much as if no rubber had been planted elsewhere.

Mistakes were inevitable, and some of the plantations were bound to result in failure. Moreover, many people doubtless have an incorrect impression of the length of time which has elapsed since the first development of interest in Mexican rubber planting, owing to the amount of talking that has been done. Persons may be heard to speak of plantations as being seven or eight years old which really have not half that time to their credit. Another fact is that a few concerns have been organized on a palpably dishonest basis, and certain others have been managed unfortunately, to the discredit of the whole rubber planting interest. Meanwhile there have been fraudulent gold mining companies organized at the public expense and there have been failures of banks presumably organized on a sound basis. We do not find, however, that good gold mining propositions are less difficult to finance than formerly, or that the public has any less confidence in banks.

We have called attention hitherto to reports which have gained currency through the United States consular service in Mexico, characterizing most unfavorably all rubber enterprises in that country. We have felt it to be

proper to criticize such reports as involving unfairness to many worthy undertakings, and to ask a suspension of judgment until reports could be made as the result of more careful investigation. Some time ago Mr. Cook, of the staff of the department of agriculture, as the result of observations in Mexico, prepared a report, the publication of which as an official bulletin committed the Washington government to the favorable recognition of rubber culture, though it did not fail to point out that the indiscriminate planting of rubber cannot be universally successful—just as it might have pointed out that if every farmer bored for oil on his own premises there might not be a liberal yield of petroleum in every case.

A staff correspondent of the *Mexican Herald* contributed recently to that journal a series of letters purporting to record his observations during a tour of the Mexican rubber belt, in the course of which he found a number of cultivated plantations under American auspices which he regarded as most promising, while in other cases he found less encouraging conditions, and some enterprises he did not deem worth longer keeping up. Reference was made also to a number of Mexican owned plantations on a small scale, which, while not conducted systematically, had given favorable results, some of them for a number of years.

The issue of *Daily Consular and Trade Reports* of November 14 includes an advance publication of portions of the annual report of Mr. Parsons, the United States consul general at Mexico, who had been understood to be making personal observations in the rubber planting belt. While Mr. Parsons is particular throughout to urge caution in making investments of any kind without proper consideration of all the circumstances, we may suggest that this tendency in his report renders the following extracts from it all the more a vindication of the advocates of rubber planting:

SUCCESSFUL CULTIVATION OF RUBBER.—Again, the culture of rubber (*Castilleja elastica*) is already a commercial success to a limited but growing extent, as proved absolutely by my inspection of Mexican plantations owned by natives who are now cropping rubber from cultivated trees. Rubber culture, like sugar culture, is profitable provided soil, climate, and other conditions are favorable, and plantations are managed honestly and well. But rubber growing, too, is now suffering because these conditions have been disregarded, and it will suffer still more when it becomes known how many of the circa 50,000,000 cultivated rubber trees in Mexico can amount to little or nothing because they were planted under unsatisfactory condition.

Our readers have been kept informed of the unfortunate circumstances attending the Ubero planting enterprises, with headquarters in Boston, the effect of which has been in certain quarters to create an unfavorable impression in regard to rubber planting. To those who have studied the matter, however, the Ubero exposé will be seen to have no real bearing upon the present status or the future of honest, practical, rubber planting. It is evident that the squandering at home of money subscribed for a plantation, instead of its actual investment in Mexico, is not proof that trees planted on good soil and cared for properly will not yield rubber at a profit. It may be added, indeed, that the incorporation of new companies for planting rubber in Mexico has continued in the face of the Ubero developments,

and that a very large amount of new planting has been done in Mexico since the bursting of the Ubero bubble.

Following close upon the beginning of an action at law against one of the Ubero promoters, and his incarceration in a Boston prison, we find in the *Traveler* of that city a lengthy interview with a New England man, who is the owner of a private plantation in Mexico and an officer of a large plantation company also with headquarters in Boston, with statements in regard to the results attained on the two plantations, and on a half dozen others in the same Mexican state, in terms capable of verification, and of such a character, if verified, as to prove most encouraging to investors in rubber planting whose money has been judiciously applied. Figures are given in regard to the yields from young planted rubber trees, and in regard to the quality of the product, which indicate that if the trees continue to grow as well as they have done hitherto, the enterprises will not fail in due time to prove so profitable that as a result we may see before many years such a "boom" as is now in progress in respect of rubber in the British colonies.

COLOMBIAN RUBBER.

THIS is such a large world that the average man, devoting his major energies to providing for himself and his own, may be pardoned for a lack of familiarity with all the many lands which lie beyond his particular national domain. One of the least known countries—to the average man—is the South American republic of Colombia. Though two and a half times as large as the German empire, Colombia, by reason of its newness and the sparseness of its population and as yet undeveloped wealth, remains a practically unknown country to all except the more immediate neighbors of this aspiring republic. But Colombia deserves our consideration, if for no other reason, on account of its rubber resources, which are excelled perhaps only in the vastly larger expanse of Brazil.

There was a time, indeed, when the United States of America derived more rubber from Colombia than from the regions of the mighty Amazon, and at a time when Colombia was exporting rubber to Europe as well. The source of supplies then under contribution was speedily depleted, however, and other rubber fields were found more accessible than the Colombian interior, which has never yet been thoroughly explored. But to-day the world's need for rubber is so pressing that regions hitherto unknown or temporarily forgotten are bound to be considered, and it may be that in this era of automobiles and the manifold industries in which rubber is indispensable, the key may be forthcoming which will unlock to the outside world a reserve of wealth in Colombia which has not been realized even by the most sanguine of her own people.

The area which supplied the large shipments of rubber from that country a half century ago is small as compared with the whole republic. Besides, there is a possibility that the regions yet unexplored commercially there possess an infinitely richer supply of rubber than that which was so ruthlessly tapped in the earlier days of rubber exploita-

tion Then the *Hevea* species—the “Pará” rubber tree—was not drawn upon at all, and yet this tree has been found to exist in Colombia over an area measured not by acres or hectares, but by degrees of latitude.

How soon the *Hevea* rubber resources of the country may be rendered of service to the world depends upon the degree of intelligence with which the government may deal with the question of encouraging their exploitation. But at least the government has placed no obstacles in the way of cultivation in the districts long ago denuded of the natural growths of *Castilloa*—and perhaps *Sapium*—and from details printed elsewhere in this Journal, it appears that planting of these species, here and there on a comparatively small scale, has been in progress long enough to demonstrate that, if there were no other field open for rubber planting, Colombia has the capacity in time to produce, under cultivation, enough to supply the world's demands for this invaluable material.

THE AUTOMOBILE ERA.

THE Olympia automobile show in London, in the month just closed, attracted an unprecedented amount of attention in the British metropolis for an occurrence of this sort, just as the Paris Automobile Salon this month is likely to do in France, despite the many notable exhibitions of the kind in the latter country. Similarly the exhibitions of the same character scheduled for the leading American cities within the next two months may be expected to prove a greater popular attraction than anything in the same line in the past. Already all the available spaces in the New York and Chicago show buildings have been preëmpted, and many would be exhibitors will be without an opportunity to show their products. And the week limit adopted in each of the cities will be too brief by far to permit all who would attend to have an opportunity to see the marvelously interesting exhibits.

The public interest in the new means of transportation is no mere passing curiosity, such as attracted crowds to see the first elephant ever exhibited in London. The automobile shows are intended to be, and are recognized by their patrons as being, means for the education of the public in the details of a new and great utility of universal and lasting importance. When the luxurious ox carts in which royalty in the middle ages was conveyed through the streets of Paris were supplanted by even more luxurious coaches drawn by horses, at a faster gait, the transition was so gradual as not to appeal greatly at any time to the public interest. Stephenson's perfection of the locomotive, far reaching in importance as was his invention, was slow in coming into universal appreciation, because railways could not be constructed quickly over long distances. And even now, with the hundreds of thousands of miles of railways on the globe, most living men have never seen a locomotive.

But the automobile is an even more spectacular object than the locomotive, and it runs where it will, without the aid of a steel roadway. And its development has been so rapid that even most children now alive antedate it in

years. In India, across the Sahara, in South American regions where the locomotive is yet a stranger, automobiles have been seen and more will be seen before any other means of locomotion faster than horse drawn vehicles will ever appear. Not as freaks or mere curiosities, but as vehicles having manifold practical advantages—not temporarily, but through so much of the future that nobody now living can foresee their end by the substitution of something even more practical.

The coming New York automobile show is only the sixth; twelve years ago the word “automobile” was unknown; twelve years hence doubtless a horse drawn vehicle on New York streets will not be seen except in the way of a “fad”, driven by some wealthy man of leisure determined to possess a novelty, at whatever cost. For the horseless vehicle is destined to prevail, not only for purposes of pleasure, but in the shape of commercial wagons, in which shape, as THE INDIA RUBBER WORLD for some time has contended, the world's greatest use of the motor car is bound to be demonstrated.

Time was when the manufacturer of rubber goods had no special reason to be interested in any form of the world's progress beyond the fact that rubber—in which comparatively few people had any interest—could be made of use for a few purposes. Nowadays, the leaders of the rubber industry must take account of progress in many directions—in transportation, for example, as now being revolutionized by the use of vehicles for which rubber is indispensable. And we may refer to a news item on another page, reporting a requirement by the United States government of more air brake hose in railways, not to mention the increasing use of rubber for this purpose in many other countries. And this is only the beginning of a catalogue of modern uses of rubber, yet in their infancy, which open new opportunities for the rubber manufacturer, and for the scientific cultivator of rubber as well.

WHERE IS THE “RUBBER TRUST” nowadays? If the daily papers remain quiet about the old octopus much longer, the people are in danger of forgetting that it exists.

ADVANCE IN LEATHER BELTING.

THE nineteenth annual convention of the Leather Belting Manufacturers' Association was held in New York November 16. The meeting was well attended and 7 additional firms of manufacturers were admitted to membership. The question of an advance in the price of leather belting having been thoroughly discussed, it was decided to make an advance of 10 per cent. over prices prevailing hitherto—this advance to be effected by changing the discount and to take place at once, but without any change in the price list, which has been in force since 1901. Edward P. Alexander of Philadelphia was reëlected president and George H. Blake, No. 28 Ferry street, New York, secretary and treasurer. F. H. Croul of Detroit, Michigan, was elected vice president.—The United States consul general at Frankfort o/M., Germany, reports a meeting of leather belt manufacturers of the Rhineland and Westphalia, at which it was resolved to issue a circular announcing an increase in the price of leather belting due to the meat famine throughout Germany and the resulting decrease in slaughtering.

THE QUALITY OF PLANTATION RUBBER.

ON his return from a visit to Europe to his post as public "rubber expert" in the Federated Malay States, Mr. P. J. Burgess, in an interview reproduced in these pages last month, said that he did not know that Plantation rubber had yet acquired a "reputation." True, it is coming forward in increasing quantities, which are quickly taken up by consumers at prices much higher than are paid for the best Pará. But then the Plantation product is so much cleaner as to justify Mr. Burgess, perhaps, in asserting that the prices "are really in favor of the Brazilian rubber pound for pound of real rubber." That the new rubber possesses intrinsic value is nowhere doubted; just how it will compare ultimately with other rubbers that have longer been in use, however, and for what purposes manufacturers will prefer the new rubber, remain to be more fully tested in practice. THE INDIA RUBBER WORLD has at hand several expressions from the trade bearing upon this subject which may possess some interest.

In the first place comes a letter from the managing director of one of the first rubber factories in Great Britain to experiment with Ceylon rubber. He writes:

"We have only as yet used plantation rubber experimentally and sparingly. Until it arrives in greater quantities it is too dear for the general trade, since the solution makers can afford to pay 2 pence a pound more for it than ordinary mechanical manufacturers. When it arrives in excess of the solution requirements, the prices will rectify themselves.

"We don't make solution for the trade, but merely for our own requirements. The quantity from any one estate is yet too trivial to be worth much attention, and as yet the London auction sales offer the best choice for the buyer and best price for the seller.

"The qualities vary even from the same estate, according to the age of the trees, whilst yet so young. We judge that the rubber has not attained its full strength till the tree is at least 8 or 9 years old; younger than that, though good gum, it has not the strength of hard cure Madeira fine Pará, and is uneven in strength. There is no difference noticeable in the rubber from 8 year old trees from different plantations. We have used about 4 to 5 tons in testing it, from about 20 plantations. As yet it is not safe to use for the finest work, such as India-rubber thread and the best bladders, but where a 'weak Pará' will do it is all right."

A MEMBER of the British rubber trade, though not at present a manufacturer, to whom the preceding lines were shown, offers this suggestion:

"It is true that an absolutely fair test of plantation rubber in comparison with Brazilian Pará rubber has not yet been possible, owing to the fact that the Ceylon and Straits products so far have been marketed in such small lots—though the aggregate may have been important—and varying so in quality and condition that the manufacturer seeking to use these sorts has been unable to obtain either an important quantity at one time or an assured supply of a given quality for regular consumption. These things will right themselves, however, with the increasing production of the plantations and the better care in the preparation of the rubber. But there is something for the manufacturer to do as well as for the planter, in arriving at the best possible results from the new class of rubbers. For instance, the manufacturer here quoted is of the opinion that the Ceylon rubber is not safe to use in making rubber thread. But the nature of his tests is not indicated. The fact that this rubber has

not given good results for thread under the established practice in his factory is by no means conclusive. Possibly with a variation from his practice, for instance in regard to vulcanization, a thread equally as good as any other in market might be produced. The whole industry will recall the variations from any former practice which were rendered necessary after the introduction of Africans before satisfactory results were obtained, but now the consumption of Africans has become very large, and for many purposes with as good results as from the best Pará sorts. In fact, there are uses for which some of the Africans are preferable to Pará rubber."

A FIRM of London rubber brokers write to THE INDIA RUBBER WORLD as follows in regard to plantation rubber from the Far East:

"At present the quantities have not been sufficiently large to be taken generally by manufacturers, and it has yet to be ascertained for what purposes these new plantation rubbers are most suited, and how results compare with ordinary fine Pará. There is no doubt that for some special purposes the pancake and sheet rubber both from Ceylon and the Malay States have been found very suitable, and the very convenient form of preparation, but it will have to come in much larger quantities before it can establish its proper place in competition with fine Pará and be generally used by manufacturers who must have regular supplies. Up to now we have found very few consumers to look with favor upon the washed and crepe rubber, and they nearly all say they prefer the biscuits or sheets, and will do the washing themselves. The crepe and washed is liable to heat en route, which is against it."

THE ELECTRICAL TRADE IN GERMANY.

THE report of Deutsche Kabelwerke Actiengesellschaft (Berlin; works at Rummelsburg; founded in 1896 and having 2,000,000 marks capital) for the last business year shows larger earnings than in the preceding year, permitting the distribution of 5 per cent. in dividends against 3 per cent. in 1904. The report states: "This is caused by the larger cable demand as well as by the changed market conditions. On account of the increasing tendency for municipal ownership many of the electrical works have passed from the hands of the electrical contracting companies to city control, and the market for cable supplies has become more open. This affords better chances of obtaining large orders which heretofore fell into the hands of the *cessionnaire* without competition. The manufacturers of specialties are also benefitted by the increasing number of electric plants erected by cities and municipalities. The prices were only slightly in advance over those of the former year. Competition remained very keen and raw material prices very high. The management hope to even up on this by perfecting the facilities for working up the raw material. The participants in the company are: The Union Cable Co., Limited (London) and the Cyklon Maschinen-Fabrik (Berlin). The first one gave satisfactory earnings and business is increasing. The Cyklon company, making the well known Cyclonet, has not made its annual report as yet, but, judging from the great activity of their business, a good result is expected. The present turnover and orders now in hand are 50 per cent. more than last year."

A PROMISING plantation of *Hevea* rubber has been started at Koolau, on the Island of Maui, Sandwich Islands, 236 acres having already been planted. The moving spirits in the matter are Mr. Hugh Howell, county surveyor of the island named, and certain sugar planters.

EXPERIENCES IN COLOMBIA—RUBBER PROSPECTS.

By the Editor of "The India Rubber World."

IT had been my fortune a number of times to observe the picturesque coast of Colombia from the sea, on both the Atlantic and Pacific sides, but up to the time that the good ship *Sarnia* landed me at Savanilla I had never set foot on its sacred soil. It was, therefore, with much interest that I stood on deck and watched the approach of the vessel to the 300-foot iron pier that is about all there is of the "Port of Colombia." There was, to be sure, a cluster of huts about the little railway station; huts that seemed to grow up out of the desolate shore much as the cactus and mesquite did, without any human intervention, but the result rather of a dry, creative impulse of some arid desert god.

We had been shouldered and buffeted for several days by the restless Caribbean, scorched by the sun and wilted by the heat, and we were glad of the prospect of getting ashore. We, therefore, entered in spirit into the feelings of our captain, who was racing with a French steamer for a good mooring, and whose Teutonic oaths we piously echoed without knowing exactly what they meant. Whether this helped in the race is a question, but at all events we got the berth, and as we were making fast the captain joined our group, his good nature restored, and as we stood under the awning, sheltered from a shower not much bigger than a pocket handkerchief, he called attention to a man standing on the pier who was General Somebody, and a personage of great importance.

"You mean the chap in the macintosh?" asked an English shipmate.

"No, the man in the rubber goat," growled the captain.

Both of them stood pat and the argument lasted long after we left them and stepped upon the pier.

It was crowded with freight cars, natives, sailors, and the nondescript Anglo-Saxons that become residents of such places and never get either money or energy enough to get away. Did I say that it was Sunday when we landed?

Well, by the calendar it certainly was the holy Sabbath, but so far as we could see, no one observed it but ourselves, which we did by rigidly abstaining from work and preparing to journey up to Barranquilla early Monday morning. This town, which is some 19 miles away, is connected with the port by a jerk

water railroad that has great difficulty in negotiating two trips in 24 hours. We therefore made all preparations, and as I was the only one who knew how to ask for three tickets in Spanish, I was elected treasurer, and full of confidence approached the ticket office with the demand, "*Tres botia Barranquilla.*" After much conversation and considerable sign language, I discovered that single fare was \$88, round trip being \$74; so I bought round trips, thus saving \$42. The price seemed a little high, but it gave us an added respect for a corporation that could secure such prices.

Taking our places in the passenger coach, which was about 15 feet long, with exceedingly narrow sides, we were bestowed as comfortably as might be. We three were the only *Americanos*, and the Colombians, particularly those with the store teeth, which seemed to be quite a fad, smiled at us benignly. We were unable to sit together, and to one fell the luck of being seated by the side of an exceedingly dark complexioned lady with much adipose tissue, who shook with the motion of the train so that we feared her calico

swathings would give way and she would run all over the floor; while between her and our companion sat a perfectly naked boy about six years old. I have forgotten how the rest of us were bestowed, I was so interested in watching the disgusted look on the face of the crowded one.

When the train was loaded and everything ready, we had the usual South American wait of about a half hour, and then finally, after much protesting on the part of the fussy little engine, the train dragged slowly along the wharf, around by the station, and following the shore took its way through most uninteresting country until we reached Barranquilla. This proved to be quite a city, Spanish-American throughout, and unspoiled by the tourists. Around the station were two score of rickety carriages, to which were attached, by rusty and nondescript harnesses, a collection of horses, cadaverous and dispirited in the extreme. Two of them succeeded, however, in getting us and our luggage to the Hotel Anglais, run by an English woman, where we secured a room. It contained four beds, a passage way between them, a washstand, and a broad balcony



VIEW OF BARRANQUILLA.



HOMES OF THE POOR.

overlooking the street. The heat was really terrific and the sandy streets of the town shot it up into the rooms until it seemed almost unbearable. Our stout companion by this time had a splitting headache, so we put him to bed and began to take care of him. I secured for him a cup of tea, part of which he drank. Another got him a glass of lemonade, which seemed to do him more good than the tea, and then for the moment he felt so much better that we got a waiter to bring him up a light meal, after which, discovering that the hotel afforded ice cream, he had a plate of that. Then he began to feel ill again; in fact quite sick at the stomach; indeed I think he would have refunded all he had eaten had I not shown him the bill, which is repeated in the mar-

Tea	\$10.	gin. Thrifty
Lemonade	8.	New Eng-
Food	50.	lander that
Ice cream	15.	

Total

he was, he subdued nature and in a sweeter of perspiration announced his intention of keeping what he had paid so high for.

Our British hostess did not have any time to spend upon us, and as English was an unknown language in the town, we were doubly fortunate in making the acquaintance of Julius Caesar Visbal, a coffee colored, barefooted urchin brought up in Jamaica, who spoke English fluently and melodiously. His presence so cheered the sick one that he suddenly became convalescent, lost his headache, got up and joined us while we did the town. Julius was indeed a treasure. He explained everything to us briefly and quaintly, and incidentally gathered at his heels one-half of the population of the town, who cared not a whit for us but who wanted to hear him talk English.

That night we dined in the main dining hall, but my appetite was spoiled by a sign on the wall which read as indicated herewith:

Ice cream	\$ 15.
Sliced ham	45.
Ox tongue	100.

After dinner we walked around in the cool of the evening, bought some Aztec pottery warranted to be genuine, and later retired to our room. It was then that we began to appreciate the deadly stillness of the tropics. The dog fight that started in the hallway opposite our room ended in the room, as the combatants fell against the door and burst in. This, mingled with the evening song of several cats, the katydid chorus, and the constant whistling of the police patrol, soon lulled us to sleep; that is, accurately speaking, it lulled one of us, who, when he once lost himself, had the whole tropical chorus beaten

to a standstill. As an originator of strange gasps, groans, sobs, and strangling snorts, he outclassed anything that we had ever heard before, and while we did not sleep, we lay and listened, filled with awe as in the presence of the emperor of all snorers.

In the morning, desirous of showing our appreciation of what Julius had done for us, we asked him to name his own reward, and he decided that he would like a pair of shoes. We

therefore purchased for him for \$30 a pair of stout leather shoes, and for \$15 more a pair of stockings. Then loath to part with him we gave him money to purchase a ticket to ride down to Savanilla with us and see us off. This he did in the thriftiest sort of fashion by buying a third class ticket, round trip, for \$10, and entering our first class car and calmly putting himself under our protection and ignoring the expostulations of the outraged conductor. We found incidentally that the fact that

Julius went away with us caused a wave of indignation to run throughout the town, as they believed we had practically abducted him. A British friend also who had remained aboard the steamer, was very much surprised to see the treatment that we accorded Julius and asked an explanation of it, in reply to which the Manufacturer said, jocosely:

"Him and me is partners."

"I am sure you are, from your grammar," replied the Briton, with a sarcastic emphasis that was delightful.

We had dinner on the boat and after dinner I rendered an account of my stewardship, which the figures show:

Railroad tickets ..	\$ 22.	Tip	\$ 5.	Ticket, Julius ..	\$ 10.
Carriage	80.	Miscellaneous ..	150.	Total	\$1376
Three lemonades ..	24.	Hotel	845.		

All this money for 24 hours of doubtful pleasure. I have forgotten whether I remarked that \$1 of Uncle Sam's money was readily taken by the Colombians for \$100 of their own.

The reason for the great depreciation in Colombian currency is said to be that 25 years ago Colombia coined both gold and silver which circulated at par, but the law

allowed all debts to be paid in silver, which was the cheaper, and in a very short time gold went out of use and became a subject for speculation rather than a circulating medium.

We got away at 11 o'clock that night and on the following morning were out of sight of land, continuing so all day. As there were no ladies aboard, and as it was exceedingly hot, we lived in pajamas and came nearer to being comfortable than we



MOUTH OF THE SINU RIVER.



PANORAMIC VIEW OF CARTAGENA.

had any time for a week. It was told us incidentally during the day by one of the officers that the report had gone abroad in Barranquilla that the president of the United States had been assassinated—a report circulated probably by some one who was feeling sore about Panama. The matter furnished a day's excitement, until the arrival of the next steamer confirmed its untruthfulness. We knew that nothing of the kind had happened, however, so were not worried by the report.

The following morning found us at the entrance of the harbor

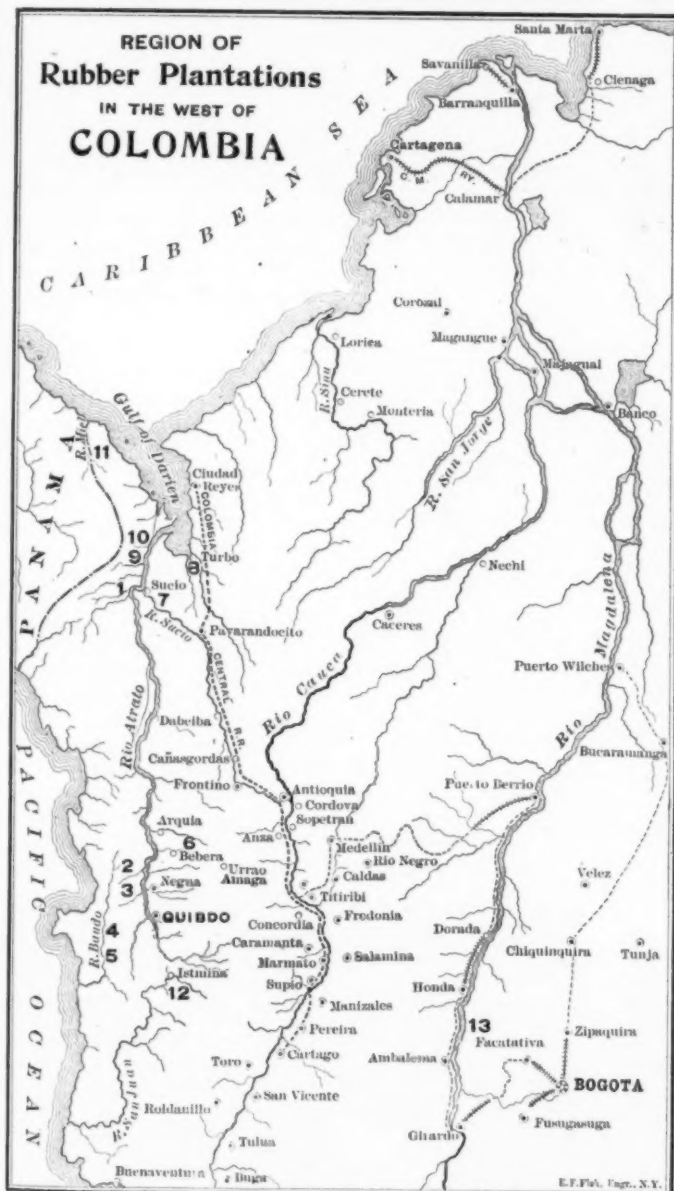
at Cartagena. We entered by the old Spanish forts, passing groves of palms, coming into a beautiful stretch of harbor where fronting us lay the old walled city, built close to the water's edge, with a background of tree clad heights, a sight picturesque and beautiful, a wonderful contrast to the Colombian towns we had just left. Making fast to the pier, the steamer was at once surrounded by dugouts, in which natives with monkeys, parrots, coral, etc., tried to tempt money from the reluctant pockets of the passengers. Getting ashore we took a short railroad ride to the middle of the city and breakfasted at the Hotel Americano. Even here there were few Anglo-Saxons. Indeed one of the storekeepers to whom we had letters of introduction said at that time there were only 7 Americans, 4 Englishmen, and 3 Germans in the city. The old city was fascinating in the extreme and we spent every moment that we could spare in viewing the walls, the cathedral, the fortifications, and the public buildings. We also went up against a native manufacturer of Panama hats and each bought several of them. Incidentally, of course, we looked for rubber, but found that there was very little in town. Indeed few knew anything about rubber any way, either wild or cultivated. A young Philadelphian who went down with us reported that on his company's concession, which covered some 200 square miles, the natives had cut down nearly all the rubber trees, and that that sort of work had followed throughout the whole of their district.

It was a very fortunate accident that at this juncture brought me in touch with Mr. Henry G. Granger, United States consular agent at Quibdo, Colombia, and it is due to his instant good will that the following record is here appended.

Quibdo, by the way, on the river Atrato, in western Colombia, is a town of some commercial importance in that region, as well as a political center, being the residence of the prefect of one of the provinces. The term "the Chocó" mentioned by Mr. Granger is a legacy from former days, when a province existed by that name, derived from an ancient Indian race called the Chocos. The region referred to now, however, forms a portion of the present department of Cauca. Mr. Granger's information follows:

"Thirty years ago the production of wild rubber in the Chocó amounted to several million pounds per year. The trees were cut down and bled to the branches. As the wild *Castilloa* here runs a free latex, it is gathered in kerosene cans or holes in the ground and is brought to market in solid cakes. Owing to the destruction of the trees, the output steadily fell off and the cakes became adulterated by earth and non elastic saps mixed in to make weight until the business became pretty well discredited, and relatively non important. Then attention began to be called to small balls of rolled strips, *chasa* (pronounced 'chassa') which were brought in by Indians and occasional negroes, which were taken from cultivated trees by cutting the bark with *machetes* at intervals of a few inches as far as a man could reach. The cultivated trees are called 'borroso' as they give a thick latex which runs but a short distance down the trunk and is gathered when dry by tearing off the strips and rolling them into balls or packing in boxes in which case they dry in the form of the receptacle.

"Practically all traveling in the Chocó is done by



FIGURES IN THE MAP RELATE TO THE LOCATION OF RUBBER PLANTATIONS (MENTIONED ON ANOTHER PAGE) BELONGING TO THE FOLLOWING:

- | | |
|--------------------------|------------------------------|
| 1. JUAN C. OLIVER | 8. LOUIS GONZALES. |
| 2. CICERON ANGEL. | 9. ABUCHAR HERMANOS. |
| 3. CARLOS NICOLAS FERRER | 10. RENÉ GRANGER. |
| 4. GONZALO ZUNIGA | 11. LOUIS M. SANTAMARIA. |
| 5. MELUK & CO. | 12. FRANCISCO DE B. CARASCO. |
| 6. DELFINO DIAZ. | 13. "LE BARRIGONA"—DE LA |
| 7. MANUEL RIOS. | TORRE BROTHERS. |



SCENE IN QUIBDO, A RUBBER TRADING CENTER.

water, and soon canoes began to arrive bringing only 'chaza,' as this class of rubber, in view of the superior price it brought in the foreign markets, was paid for at much higher rates than the ordinary cakes. This stimulated the negroes and about nine or ten years ago they began to plant rubber, until to-day of the estimated population of 80,000 negroes in the Chocó, he is the exception who has not, if not bearing, at least a few dozen trees planted. And some of them have as high as 4000 trees in a plantation.

"Now, in the rubber shipped from Chocó the cake is the exception and *chaza* the rule.

"The products of the Chocó are shipped by the steamer *Condor* and a number of dory shaped schooners to Cartagena on the Atlantic coast, and by dugouts to Buenaventura on the Pacific. The only two vessels which have kept a record of their classified freight for the past year are the steamer *Condor* and the schooner



COLOMBIAN SCENERY.

Tulia. Inquiry from their owners resulted in the statement that they carried during this period 71 and 80 tons of rubber respectively. As there are a number of other schooners which run to Quibdo and are known to bring rubber, it is entirely

reasonable to place their entire total at that of the *Tulia*, or a general total to the port of Cartagena of 231 tons per year. Señor Luis Durier of the firm of Zuniga & Diaz, at present manager of their Cartagena house, who has had extended experience in the province of San Juan, says that unquestionably this region shops as much as the Atrato. But if it shipped far less we would still have a product of over a ton a day, the great majority of which is *chaza*, or the product of standing cultivated trees.

"It is an accepted fact that in five, or even four years if well cared for, a rubber tree in the Chocó will give a total annual product, of various cuttings or tappings, of a pound of *chaza*, and that if care is taken not to injure the tree, this amount will annually in-



LUMBER AND WILD RUBBER CAMP.

is taken not to injure the tree, this amount will annually in-



MEDELLIN STREET SCENE.



MEDELLIN—HOME OF A WEALTHY CITIZEN.

crease. The commerce of the Chocó is in the hands of the white race, who live in the principal towns. Many have gone into rubber planting, and some esteem their plantations more than their merchandizing. Among the principal ones are:

Juan C. Oller, Rio Sucio, Atrato, Colombia.

Ciceron Angel, Quibdo, Atrato, Colombia.

Carlos Nicolas Ferrer, Quibdo, Atrato, Colombia.

Gonzalo Zuniga, Quibdo, Atrato, Colombia.

Meluk & Co., Quibdo, Atrato, Colombia.

Delfino Diaz, Quibdo, Atrato, Colombia.

Manuel Rios, Rio Sucio, Atrato, Colombia.

Luis Gonzales, Turbo, Atrato, Colombia.

Abuchar Hermanos, Sautata, Atrato, Colombia.

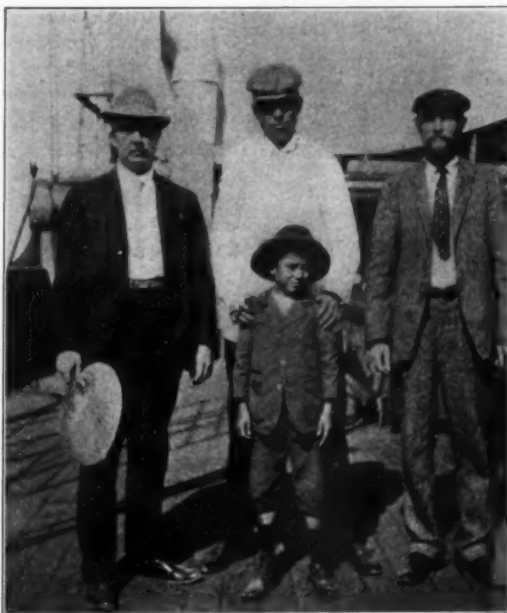
René Granger, manager, Yankomba, Atrato, Colombia.

Luis M. Santamara, manager, La Carolina, Uraba, Colombia.

Francisco de B. Carrasco, Istmina Choco, San Juan, Colombia.

—not to mention the hundreds of small plantations of much larger aggregate than the above, whose planting will amount to probably about 300,000 trees; all of *Castilloa* except at La Carolina, which is trying *Manihot Glaziovii* with

seeds brought from Don Simon de la Torres's ranch 'La Barrigona' on the upper Magdalena, which in turn brought seeds from Ceylon.



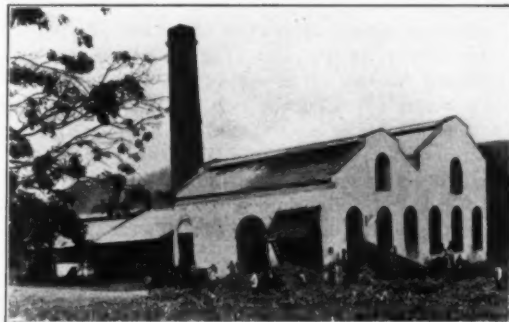
THE EDITOR (ON THE RIGHT) AND HIS COMPANIONS DU VOYAGE.
[The Boy is Julius Caesar.]

"It is found that rubber to thrive in the Chocó must be planted in the sun, and the accepted distance apart is 4 to 5 meters. The construction of the Colombia Central railroad from the gulf of Uraba (Darien) to the interior will open up a lot of rubber land in addition to the areas already accessible. Banana raising, quartz mining, and gold dredging are industries of great promise here, but none of them will surpass the rubber planting business if the present enthusiasm continues, and judging from the outlook it will."

Incidentally other details have come to my notice regarding the interest in rubber planting that is being developed in Colombia, and which will be put in shape for my readers in the near future. This interest really is larger than I had had reason to appreciate, and is likely to become very important. Important concessions for exploiting crude rubber are also about to be developed.



BANANAS



SUGAR CANE.



LUMBER.



CACAO.

TYPICAL INDUSTRIES OF COLOMBIA.

RUBBER INTERESTS IN EUROPE.

GALALITH IN RUSSIA.

A CONCESSION has been obtained by G. J. Bierich, of Riga, to form a company, Aktiengesellschaft der Baltischen Fabriken von Galalith- und Hornfabrikation, with a capital of 500,000 rubles [= \$257,500], to establish works in the Livland district for producing compounds of Galalith, horn, and other materials, and to make goods from these. The company will work under arrangements with the Internationale Galalith-Gesellschaft Hoff & Co. (Harburg a/d Elbe, Germany).

MR. TIPPET RETIRES FROM THE LIVERPOOL.

AFTER serving for nearly 21 years as chairman and managing director of The Liverpool Rubber Co., Limited, Mr. Henry Grendon Tippet has retired, to enjoy what his many friends trust will prove a long holiday, which will be devoted to the pleasures of country life at Ross, in Herefordshire. During Mr. Tippet's administration the Liverpool company has enjoyed an era of prosperity which testifies to his capacity and devotion to its interests. As chairman and later a director of the India-Rubber Manufacturers' Association he has exerted himself likewise in the general interest of the rubber industry. Mr. Tippet remains a member of the board of the Liverpool company; his successor in the chairmanship is Mr. Max Muspratt, an active and capable young man of 34, a son of Mr. E. K. Muspratt, J. P., chairman of the British Insulated and Helsby Cables, Limited, of Prescott.

GERMANY.

THE Deutsche Gummischuh-Vertriebs-Gesellschaft G. m. b. H. (German Rubber Shoe Distributing Co., Limited), of Berlin, which has the exclusive sale of the "Harburg-Wien" and "Calmon" rubber shoes, announces that it was not affected by the fire at the Harburg works, in so far as the warehouses containing the stock for the entire season were wholly saved. The company therefore is in no way impeded in making deliveries.

=Sächsisch-Böhmische Gummiwaren-Fabrik Actiengesellschaft, formerly having factories at Dresden Lobtau and at Bünauburg (Bohemia), but recently operating only the latter, has been merged with Frankfurter Gummiwaren-Fabrik Carl Stöckicht Actiengesellschaft, formed last year to acquire the works before carried on by Stöckicht as a private concern at

Frankfort o/M. The Bünauburg works will continue to be operated, thus giving the Stöckicht company two factories—one each in Germany and Austria.

=Pahl'sche Gummi- und Asbest-Gesellschaft m. b. H., at Düsseldorf-Rath, have increased their capital to 850,000 marks [= \$202,300], in accordance with a resolution dated August 11, 1905.

GREAT BRITAIN.

W. T. HENLEY'S Telegraph Works Co., Limited, announce the issue of £150,000 at 4½ per cent. first mortgage debenture stock, of which £41,798 is allotted for the retirement of existing debentures and the remaining £108,022 offered for public subscription. The company are building an additional factory at Gravesend, and the new issue is intended principally to meet the expenditure upon the new works.

=The eleventh International Shoe and Leather Fair, held during the first week of November in London, included some notable exhibits of rubber boots and shoes, together with rubber soles for sporting and other shoes, and particularly a great variety of rubber heel pads.

VEREINIGTE GUMMIWAREN-FABRIKEN HARBURG-WIEN.

THE gross profits of the goods account for the business year ending June 30 last amounted to M 3,040,445 96 [= \$723,626.14], against M 2,729,948.29 of the preceding year, and M 3,374,100.67 in the year 1902-03. The net profit for the last business year amounted to M 850,522.84 [= \$202,424.44] against M 830,301.45 last year, and was disposed of as follows:

Net profit for this year.....	M 850,522 84
Dividend 5 per cent. on the entire capital.....	300,000.00
	M 550,522 84
Less 10 per cent. Commission to the Directors.....	55,052.28
	M 495,470.56
Add Balance from profits of 1903-04.....	181,478 36
	M 676,948 92
Dividend 7½ per cent. on the entire capital.....	450,000.00
	M 226,948.92
Less Officers' Pension Funds.....	50,000.00
	M 176,948 92

Balance to 1905-06..... M 176,948 92
The capital of the company remains at M 6,000,000 [= \$1,428,000], and the reserves at the former large figures.



AFTER THE FIRE (OCTOBER 7)—VEREINIGTE GUMMIWAREN-FABRIKEN HARBURG-WIEN.

[See THE INDIA RUBBER WORLD, November 1, 1905—page 55.]

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

THE beginning of November sees rubber manufacturers busy preparing their samples and quotations in response to the tenders sent out by the Admiralty. This year things are on a somewhat different footing from the past. Not only is there a new chief chemist at the head of the Admiralty laboratory, but the strong representation made a year or so ago by manufacturers as to the nature of the tests employed has led to a decided alteration. The new specification for A quality is, I think, of sufficient interest to give in full:

ADMIRALTY
CONTRACTS.

The India-rubber is to be made of pure Caoutchouc of the quality specified below, with no other ingredients than sulphur and white oxide of zinc. The sulphur is not to exceed 3 per cent. and the oxide of zinc is not to exceed 40 per cent., reckoned on the manufactured rubber. It is to be of a homogeneous character throughout and is to be thoroughly compressed free from air holes, pores, and all other imperfections; it must contain no crumb rubber, recovered rubber, or other treated or waste rubber, or rubber substitute of any kind. It must endure a dry heat of 270° F. for 2 hours without impairing its quality. The quality of the Caoutchouc used must be of such a character that after it has been made up into the vulcanized and finished article, as defined above, not more than 10 parts per cent. of organic matter and sulphur calculated on the non-mineral matter present can be extracted from the rubber by boiling it for 6 hours in a finely ground condition with a 6 per cent. solution of alcoholic caustic potash.

The alteration from the old specification consists in the substitution of the moist heat test 4 hours at 320° F. by the alcoholic potash test as a means of detecting the presence of substitute or highly resinous rubbers. In addition the words "Para rubber" vanishes and "pure Caoutchouc" appears instead. The new test requires careful reading: I don't say that it is ambiguous, but that its tenor is not at once apparent to the business man in a hurry is a matter of fact which has come prominently under my own observation.

Now that the question of honesty does not arise in sending rubber which is not fine Pará, there is plenty of scope for manufacturers to exercise their skill in producing a compound which will stand the tests and not be prohibitive in price. It is an open secret that the bulk of the contracts placed in the past have been for rubber which did not consist entirely of pure Pará and rejections were assignable more to excess of sulphur than to failure in other respects. The new test may be taken as an indication that the chemical examination throughout will be of a more severe character than under the old regime, though as long as it does not go beyond what is laid down in the specification the manufacturers have no legitimate cause for grumbling. There is a point which has arisen, however, under the new regime which certainly discloses an unsatisfactory state of affairs. In a certain class of goods the manufacturers have largely ignored the old specification and supplied a rubber mixing which their own experience has shown to be much more suitable. This has been done for years and as the price quoted has been much lower than if the specification had been adhered to the country has been a gainer. Now, however, the manufacturers are to supply a rubber, under pain of rejection, which is quite unsuitable for the purpose and which must necessarily be more costly. Evidently we have here another case where a conference of manufacturers with the non-technical authorities seems not only desirable but absolutely necessary if this particular portion of the country's business is to be carried on on sen-

sible lines. As the case stands at present a manufacturer who sends a sample of what he has been supplying for years will have it rejected on analysis and if he sends what the Admiralty specify for he knows that the goods will not prove satisfactory under the conditions of use, and this of course may easily cause him discredit in trade circles as a maker of unsatisfactory goods. There has been I may say some considerable rejection of admiralty rubber since the new chemist took office but I do not propose to go into details. It ought to be pointed out that the present dry heat test of two hours is an alteration of the old one which was only one hour at 270° F. With regard to this test it is important that buyer and seller should use precisely the same method of testing, otherwise discrepancies in results are certain.

I AM informed that Mr. Samuel Whitehead, who has been for some years works manager at the Leyland and Birmingham Rubber Co., Limited, at Leyland, has entered into an arrangement with the Wood-Milne Co. to manufacture their heel pads, for which a factory is now in course of erection at Leyland. So far from showing any diminution in popular favor, I have it on good authority that the turnover of the Wood Milne Co. the last twelve months shows an increase of 40 per cent. over the previous period. Up to now the company has had its goods manufactured by some of the principal rubber works, and the effect of the new departure will of course mean a loss of a large amount of business to certain rubber firms.

NEW
WORKS.

ON October 30 the rubber machinery at Messrs. Gotliffe's proofing works at Hyde, near Manchester, was sold piecemeal by auction as a sufficient bid had not been received for it as a whole. The firm are continuing in the waterproofing business at their premises in Ancoats, Manchester, but will in future buy their proofed cloth from the large rubber manufacturers and save themselves from the worries incidental to the manufacture *ab initio*. The trade generally is looking up, orders and enquiries in this branch being quite numerous compared with a year ago.—On October 31 and succeeding days a sale was held at the works of the Hyde Rubber Works, Limited, of the stock-in-trade, comprising raw and batched rubber, reclaimed rubber, chemicals, and fittings. The premises, as already mentioned, have been acquired by Messrs. Mandleberg & Co., for the habitat of the new Unity Rubber Co. Discord rather than unity has been associated with the works during past years, but the new company has all the elements of success about it. In addition to the above mentioned goods, there was a quantity of manufactured rubber including cycle and motor tires, matting, and heel pads. The conditions of sale had a clause referring to manufactured patent registered or proprietary articles which, it was stated, were sold on the condition that they were only used as scrap rubber. With regard to heel pads, for which there was animated bidding, the auctioneer was closely questioned as to this condition of sale and was evidently in doubt as to whether "this country" as a place of sale included Ireland and Scotland. Judging by the prices paid I should hardly imagine the heel pads sold will be used only as scrap. There was no machinery on sale, this having evidently been taken over by the new company. Those who were of an inquisitive mind with regard to this found the workroom doors with notices

AUCTION
SALES.

appended stating that entry was forbidden and drawing attention to the dog, which certainly could be heard within.

It was with deep regret that I heard of the recent death of Mr. John Cooper, the managing director of the Dermatine Co.,

THE LATE
MR. JOHN COOPER.

Limited, of Camberwell, London, and I am sure that this feeling will be shared by all those who had business or social relations with him. It was not until 1888 that Mr. Cooper, who was born at Kirkintilloch, left the neighborhood of Glasgow, where he was engaged in journalistic and other work, to come south, and his work at the Dermatine Co. is a good instance of what energy and enthusiasm can accomplish where previous training has not been in the technical branch. Mr. Cooper used to say that he was really no loss to the papers for which he wrote musical criticisms, and it certainly seems that he found a sphere in which his undoubted capabilities of organization and of attracting custom could be utilized to greater advantage. The present position of the Dermatine Co. compared with what it was when he joined bears convincing testimony to the work accomplished. As a member of the committee of the India-Rubber Manufacturers' Association, Mr. Cooper was a regular attendant at the Manchester meetings. Although he had paid many business visits to the Continent, Mr. Cooper had not found time to visit America, though he has often told the writer that he looked forward to doing so. Mr. R. F. H. Webb, who has been for some years a director of the Dermatine Co., will now act as managing director, while Mr. C. R. C. Hart, who has had considerable experience of the business, has been appointed general manager. Under these auspices the company should continue to flourish, though it is inevitable that Mr. Cooper's loss will make itself felt.

FROM all accounts the motor show at Olympia to be held from November 17

MOTOR
TIRES.

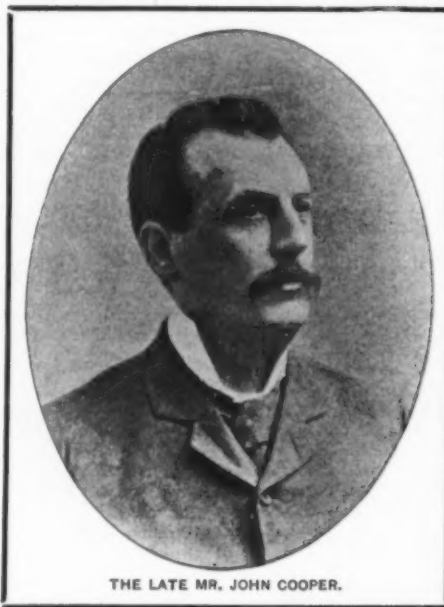
to 25 promises to be the biggest thing of its kind that London has seen. As I write I hear that our Editor will be among the visitors and will doubtless take on himself the additional duty of reporter.

According to a paragraph which has appeared in the daily papers Mr. Clifford Hallé has invented a spring wheel for motor cars to obviate the use of rubber tires. It is stated to have satisfactorily undergone severe tests and to have proved its capacity of withstanding side strain and of allowing the axle always to remain in the center of the wheel while bearing its share of the load. Paragraphs of this sort are occasionally inspired and so far I do not find much enthusiasm among motorists concerning it. The sort of thing it is said, has been tried before but nothing has come up to rubber for smoothness of running. —Messrs. Iddon Brothers, rubber machinists of Leyland, are busy making the wheels for the Hartwich Tyre Syndicate. This tire is especially for motor wagons and consists essentially of rubber blocks 8 inches long and 5 inches thick let into the circumference of a steel wheel; these are placed at a slight distance apart on the wheel projecting to a small extent. I understand that in a recent test of 1000 miles with a 10 ton load the face of the rubber was worn down less than $\frac{1}{8}$ of an inch. It may be urged against this form of tire that it requires a specially made wheel, but against that it is certainly economical and

should have a good chance of competing with the pneumatic tires generally used on motor buses.—I see that some adventurous gentleman has got a permit from the Porte to drive his motor car through Turkey. From my slight acquaintance with the roads of the country and from what I have been told I imagine that his tires will have a rough time of it. Of course there may be some good main roads, but the country roads of which I recently had experience were simply stony tracks along which a horse and carriage could only proceed at a walking pace.

THE question of railways in Ceylon has an important bearing upon the distribution of labor, both Cingalese and what is obtained from the mainland, and this of course in connection with the new rubber industry as well as with the older tea planting. Sir Henry Blake, the governor of the island, who is now in England, is discussing the matter of light railways with various authorities. The matter is not sufficiently close to the interests of this to warrant further reference. With regard, however, to the labor question generally, I am informed that the difficulties and troubles which have

been experienced are largely due to the middlemen who engage the men and then get them in their debt by certain procedure. Another source of trouble is that the labor is intermittent. Where as on the lands of the Consolidated Tea Co. the hands are found work all the year round at road making for instance, at times they are not wanted on the plantation, I understand that labor is readily obtainable. What is wanted it appears is the abolition of the middleman and not too close a haggling over rates of payment, and there will be no longer any labor question. Mr. Julius Hoffman presiding at a recent meeting of the Rubber Plantations, Limited, referred to this matter and thought that those companies who were first in the field would be the best off as it was reasonable to suppose that there would be a deficiency. His other remarks were not particularly germane to the subject of this paragraph, but I may perhaps be excused for a brief notice of



THE LATE MR. JOHN COOPER.

them. Overproduction of rubber he said is a myth, as at the present rate of demand, especially for motor bus tires in seven or eight years there would be shortage of supply of 40,000 tons per annum. Moreover, the cultivated rubber could be profitably sold at 8 or 9 pence per pound. Of course a good deal depends upon the output of wild rubber, but naturally remarks such as the above are causing excitement amongst speculators and have caused the recent promotion in London to go off well. One thing seems certain, the published accounts of the profits derivable from the Ceylon plantations show that there is no need for close economy in the price of labor, though naturally in the years of waiting there will be a tendency in all directions to keep down the scale of expenditures.

THE accounts of this small Manchester concern allowing for the payment of a 5 per cent. dividend with nearly £1000 forward must be considered satisfactory, especially as the opinion was freely expressed that the untimely death of Mr. Harry Heaton a year or two ago spelled impending ruin.

THE GORTON
RUBBER CO.

A GERMAN CONGRESS DISCUSSES RUBBER CULTURE.

AT the second German Colonial Congress (Berlin, October 4-8) a considerable part of the program was devoted to the consideration of topics connected with Caoutchouc and the world's supplies of this important commodity. In section V—"The Agricultural Condition of the Colonies and Transmarine Possessions"—almost the entire first session was devoted to the Caoutchouc question. The two speakers were Professor Dr. Otto Warburg, member of the Kolonial-Wirtschaftlichen Komitees, a well known Colonial technologist, and one of the foremost authorities on the *Ficus* species, and Herr Louis Hoff, director of the Vereinigte Gummwaren-Fabriken Harburg-Wien, and President of the Zentralvereins Deutscher Kautschukwaren-Fabrikanten (Central Union of German Rubber Goods Manufacturers). The formal addresses delivered by these gentlemen were followed by discussions in which much interest was evinced. In the absence of copies of the two papers THE INDIA RUBBER WORLD is pleased to acknowledge its indebtedness to a summary of them, with comments, by Dr. Soskin, in *Gummi-Zeitung*.

* * *

DR. WARBURG expressed great confidence in the future of rubber culture in the German colonies—in Kamerun, New Guinea, and Samoa, particularly in regions having a copious rainfall, and also in German East Africa. All of these he thought would be able to report an important development in rubber culture within a very few years. Already more than 1,000,000 rubber trees have been planted in the German colonies, nearly half of them in New Guinea and one quarter in Kamerun and German East Africa. Samoa, also, in consequence of the recently formed Samoa-Kautschuk Compagnie, is preparing to cultivate rubber extensively.

In New Guinea *Ficus elastica* and *Hevea Brasiliensis* have already given excellent results, tappings of old *Ficus elastica* yielding $2\frac{1}{2}$ kilograms per tree valued at 7.50 marks per kilo. *Manihot Glaziovii* (the rubber of Ceará) has given satisfactory results in East Africa, eight year old trees yielding 100 grams [=about $3\frac{1}{4}$ ounces] of a quality saleable at 6 to 7 marks per kilo. This tree promises to be of great importance for East Africa on account of its easy cultivation and early productiveness. Kamerun possesses a valuable native rubber tree in the *Kickxia (Funtumia) elastica*. Recent experimental tappings of five year old trees under cultivation gave promising results as to quantity, and the product showed under analysis 87.2 per cent of Caoutchouc of fine quality.

A "rush" such as prevails in Ceylon and the Malay States, where an enormous amount of capital has been invested in rubber culture, does not exist in the German colonies and is not desirable. "But," said the speaker, "the plantation companies who devote themselves early to this culture will be well repaid, even if they should be unable to divide a 60 per cent. dividend, like some of the English plantations."

Dr. Warburg felt that great changes would be necessary in Caoutchouc plantation methods in the near future—in connection with the manner of tapping rubber, for instance. The crude tapping practice of the present will have to be replaced by more practical methods. As in the case of the cinchona plantations, every particle of Caoutchouc contained in the bark should be obtained, though the speaker did not indicate definitely by what methods such desirable results might be reached further than mentioning the removal of sections of bark from

some species, as is done with oak trees for tanning purposes, or by the pulling up of young plants in a system of annual field culture. Dr. Warburg mentioned that from *Castilloa elastica* plants not yet a year old from 6 to 8 per cent. of Caoutchouc had been extracted. Sufficient data is lacking, however, to establish a satisfactory theory as to whether either of these methods would prove practicable, though under Dr. Warburg's direction experiments are being made bearing upon these points.

Dr. Warburg made a very interesting statement in regard to a new Caoutchouc yielding plant—a species of mistletoe discovered in Venezuela,* containing in the dried fruit from 12 to 24 per cent. of a good, easily extracted Caoutchouc. This is from a botanical standpoint of great interest, because hitherto no fruits containing Caoutchouc in any important quantity have been known. It is of agricultural interest as well, since the Venezuelan plant may prove susceptible to cultivation, particularly on plantations which have been abandoned as unprofitable, or on shade trees or hedges. The plant is said to fruit abundantly at the age of one to four years. The speaker had induced the Kolonial-Wirtschaftliche Komitee to send a specialist to Venezuela for studying the mistletoe culture, with a view to adapting it to the German colonies.

The question of the eventual overproduction of rubber was next touched on by the speaker, as a matter of practical interest in connection with engaging in this culture. He quoted figures to show that at present some 60,000 hectares [=148,260 acres] were devoted to rubber plantations, of which 16,000 are in Ceylon, 15,000 in the Malay States, and 4000 in Mexico. Should the yield be only 1000 marks per hectare (at present a net profit of twice this sum is calculated on plantations of *Hevea*), within a few years a harvest would be valued at 60,000,000 marks [= \$14,280,000]. Or if we figure the annual yield per hectare at an average of 200 to 250 kilograms of rubber, the 60,000 hectares would yield 12,000 to 15,000 tons of Caoutchouc, equal to about 20 per cent. of the world's total present production. It must be considered, however, that the production of wild rubber will decrease rather than increase, especially if prices should decline. At the same time, a fall in prices would lead to increase in consumption. Therefore, the overproduction of Caoutchouc is not to be feared for a long time to come.

* * *

THE well known director of the Harburg-Vienna company, Mr. Hoff, gave a discourse which gained special attention because, on account of his practical knowledge as a manufacturer, he represented the view of the Caoutchouc industry. He pointed out that the practical applications of rubber dated back only about 60 years, to the epoch making discovery of vulcanization by the American, Goodyear. In Germany rubber goods have been manufactured for 50 years, the Harburg works, founded in 1855, being one of the first in Germany. To-day there are in the empire 90 rubber goods factories, employing a capital of at least 100,000,000 marks [= \$23,800,000], and no less than 30,000 workers.

Such is the important position held by rubber in the various industries that many of them would be practically impossible without rubber. The machinery, brewing, chemical, and sugar industries employ rubber in many forms—packing, belting,

* See "Die Kautschukmisteln", by Dr. Warburg, in *Der Tropenpflanzer* (Berlin), November, 1905. Pp. 633-647.

valves, and the like. The railways, in the use of rubber in air brakes, have reduced danger in travel to a minimum. The electrical industry (insulating tape, insulating tubes, hard rubber sheets, etc.), and the bicycle and automobile industries are indebted to rubber for their development and perfection. The surgical use of rubber was also referred to. Mr. Hoff pointed to these various uses as the cause of the continually increasing demand for crude rubber with which the former increase in production could not keep pace. The objective of all interested should be to devise ways and means to further the production of raw Caoutchouc in order to meet the world's increasing wants. Mr. Hoff quoted figures to show the increase in the consumption and in the production of rubber during the past five years, indicating a very material decline in the world's visible supply, all of which accounted for the rise in the price of crude rubber.

The speaker then touched on the manner of exploiting the raw material in the producing countries, and supported the proposition that "the endeavors of all interested should first be directed to the creation of laws by which the piratical exploitation of Caoutchouc could be checked, and further to advance the cultivation of Caoutchouc plantations and to furnish the necessary capital therefor." While in the resulting discussion various opinions were expressed in regard to regulating the exploitation of wild rubber, Mr. Hoff's position in regard to systematic culture in order to keep abreast of the increasing demand for raw material was commended, and had much weight from the fact that the manufacturers have a thorough knowledge of the necessity of assisting in the obtaining of this supply. Dr. Soskin comments: "This is as far as I know the first open acknowledgment by them of the urgent necessity of assisting the cultivation of rubber plantations financially as well as by sharing in plantation management."

Mr. Hoff recommends a police system for the protection of the Caoutchouc forests in the German colonies similar to that employed by the bureau of forestry. He cited the example shown in this respect by the Congo Free State. To defray the expenses of protection he recommended a tariff on the export of rubber from the German colonies.

He next referred to the lack of interest shown heretofore in Germany in rubber culture, at a time when the endeavors of the Americans in Mexico, the Belgians on the Congo, the English in the Far East, and the Dutch in Java had led to such promising results. The hesitancy of German capital in this respect he said was due to the number of years required for rubber plantations to become remunerative, and the further fact that considerable capital has been invested in other colonial undertakings which have not always proved satisfactory. The question of delay, however, he did not regard as so serious when *Hevea Brasiliensis* has been found to yield in Ceylon and Malacca as early as six years, while *Kickxia* in Kamerun and *Manihot* in East Africa had given even earlier results.

Mr. Hoff exhibited some specimens of the leading rubbers of commerce, which proved very interesting to his audience. There was a piece of fine Upriver Pará, the most valuable ordinary sort, worth on that date 12.50 marks per kilo; a piece of upper Congo obtained by the careful tapping of trees and vines and losing but 5 per cent. in washing, and worth 9 marks per kilo; a piece of Djuma obtained by piratical exploitation, containing much wood, earth, etc., losing about 30 per cent. in washing, and worth only 5 marks; and lastly, a piece of Ceylon plantation rubber (*Hevea*), showing how choice a product could be obtained by intelligent cultivation. Such rubber suffered a loss in washing of only 2 per cent., and was worth say 15 marks per kilo.

The speaker urged participation in rubber planting undertakings. Hesitation, he said, meant a serious loss to the national capital in the colonies, and every ton of rubber obtained in their own colonies was a material gain to the empire in enhancing its independence of other countries. He solicited earnest support for the Kolonial-Wirtschaftlichen Komitees, which has endeavored to further rubber culture in colonial Germany and is now preparing to send a Caoutchouc and Gutta-percha expedition to New Guinea. He touched upon the importance of granting valid titles to colonial lands for planting purposes as a further incentive to capitalists to interest themselves in rubber culture. He regretted that this culture had not started in the German colonies 20 years ago, in which event rubber prices might not be so high to-day, and certain recent failures of rubber factories might have been averted.

In the ensuing discussion further proofs were offered of the profits to be expected from rubber planting. Attacks were made, however, on the newly organized Samoa-Kautschuk Compagnie, which was accused of giving rise to too high expectations of profits. In the absence of a representative of the company, Dr. Warburg arose in its defense. He said it was surprising with what energy and intelligence this company had begun operations, in securing 400,000 young plants of *Hevea Brasiliensis* in Wardian cases and 700,000 seeds in various packings, for shipment from Ceylon and Malacca to the new plantation.

* * *

In section I—"Geography, Ethnology, and Natural History"—Professor Dr. Volkens gave a "Synopsis of the most Important Caoutchouc Sorts of Commerce, and of the Plants Yielding Them." Like Mr. Hoff he pointed to the ever increasing demand for Caoutchouc, with which the production did not keep pace. The production in the Amazon states had become stationary during the past few years, and in some countries a deficit is to be recorded. He mentioned an important Congo trading company which during the year had furnished only one-half its former exports. He contended that the exploitation of native rubber forests would not suffice and that only systematic culture could avert an ultimate rubber famine, following which he mentioned the rapid increase in area of rubber plantations in Ceylon and elsewhere, but proportionately the planting to date in the German colonies had been unimportant.

Dr. Volkens, passing to the individual sorts, discussed the Pará rubber and the tree yielding it, showing that that tree is susceptible of being cultivated over a very much wider area than was formerly supposed. Mentioning Ceará rubber (*Manihot*) he said 250,000 trees had been planted in German East Africa. *Castilloa elastica* had failed under cultivation in some countries, but New Guinea, where 270,000 trees of this species are now growing, has shown better results. New Guinea has also 250,000 *Ficus elastica* under cultivation. Similarly the speaker referred to the other yielding rubber sorts, concluding with a reference to the Guayule rubber of Mexico, which only recently has appeared in the European market. The plant yielding it, *Parthenium argentatum*, he said, is of special interest from the fact that its Caoutchouc contained therein is not found in the latex, but in the cellular tissue.

HIGH PRICE FOR RUBBER.—The *Times of Malay* reports that at an auction sale at Singapore on July 26, \$4.10 (silver) per pound was paid for "Pará sheets" from Plang estate, owned by Edwin Phillips, of Sungei Siput, Perak, Federated Malay States. This price was equivalent, at the exchange rate then current, to about 6s. 11¼d. [= \$1.68¾] in London. The rubber was reported to be of good color and free from mold.

NEW GOODS AND SPECIALTIES IN RUBBER.

"RE-NU" VACUUM PRESERVING JARS.

GRAY STAUNTON (Evanston, Illinois) has had patented an improvement in sealing preserving jars, an application of which is illustrated in the accompanying drawing. The invention relates primarily to jars or other vessels for hermetically sealing and preserving fruits or other foodstuffs, beverages, and so on, and has for its object the

providing of simple and efficient means whereby the cover may be held on by atmospheric pressure and readily released without injuring the cap, so that the vessel may be refilled and used an indefinite number of times, thus adapting the invention for household as well as other purposes. The illustration relates to a jar the upper end of which is formed with a flange upon which rests a cap so shaped as to form a tight connection. Around the edge of the cap is a rubber gasket, indicated in the drawing. The center of the cap is formed with a small vent, closed by means of a rubber valve. In the use of such preserving vessel a vacuum or partial vacuum within the same may be created by bringing the contents to a boiling temperature, which

will cause the outside atmospheric pressure to tightly close the rubber valve in the cap; or the air at the top of the vessel may be exhausted by means of a simple pump. In the latter event the invention may be used for preserving materials without cooking or any other employment of heat in connection with the canning process. Under the atmospheric pressure, after the vacuum is formed, the flattening of the rubber gasket serves more completely to seal the jar. This invention is adapted to the use of any other material than glass for jars, and the form is not necessarily such as is indicated in the drawing. The suction pump referred to may be of the simplest construction, such as may be provided for a few cents. Patents have been granted in the United States (No. 793,107), France, Belgium, Italy, Spain, Canada, and Japan, and applications are pending in other countries. [The Vacuum Appliance Manufacturing Co., Postal Telegraph building, Chicago.]

AN AUTOMATIC AIR TIGHT COVER.

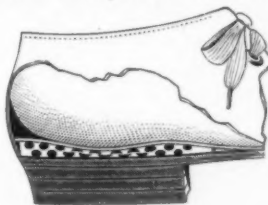
THERE have come into wide use in Great Britain in the bottling and preserve provision trades air tight covered glass jars the sealing of which, with patent fittings, is accomplished as follows: The packages referred to are closed by placing an India-rubber ring under a metal lid, which is pressed into place and held down temporarily by a clip. The glass jar, with its contents and lid in position, is then boiled, and the expansion of the contents drives the air out,

so that when the package is cold again, a vacuum has been formed under the lid, which is pressed down by the atmosphere, and thus hermetically sealed, after which the clip is re-

moved. At least this has been the practice for some time, but with a view to doing away with the use of India-rubber the Automatic Air Tight Cover, Limited (17, Thavies Inn, Holborn circus, London, E. C.), controllers of the patent referred to, have introduced a new style, figured herewith, in which the rubber ring is replaced by a special composition let into the rim of the tin cover, the composition and the cover being in one piece. This is placed in position on the top of the glass jar and the same procedure followed as when the rubber ring is in use. The new composition is referred to as containing no sulphur or other material likely to act upon the tin, nor does it perish, being unaffected by the boiling process. In opening the jar all that is necessary is to pierce the lid to destroy the vacuum, or to raise it from the side as shown in the illustration. Some of the largest British provision packing firms, including Lipton, Limited, are mentioned as using this system.

FOSTER PNEUMATIC HEEL CUSHION.

THE article herewith illustrated is designed to be worn inside the shoe, under the heel. It is a springy pneumatic device which slips readily into place and requires no effort to make it remain there. The construction of the rubber is such that it gives a maximum amount of resilience and absorbs all the jar of walking. It is claimed that this cushion not only gives comfort to the wearer, but that it improves the fit of the shoe.



An encouraging sale of this article is reported, and it is supplied in any size desired in shoes for men and women. It is designed to retail at 25 cents per pair. [Foster Rubber Co., No. 370 Atlantic avenue, Boston.]

THE "NO SLIP" HEEL.

A NEW heel illustrated herewith, the invention of Joseph Martin, is referred to as having been designed by a man who has attached many rubber heels at the bench, and has thus become familiar with the merits and demerits of many brands. This is principally a leather heel, the rubber part being indicated by the lighter shaded section of the cut. In form the rubber section suggests the steel plate often applied to leather heels to keep them in shape, but in size it is considerably larger than the ordinary steel plate. The rubber section is flush with the leather heel, and an inner edge of it extends within the heel to further assist in keeping it in position. The rubber is placed where the wear and jar first come. These heels are referred to as being much lighter in weight than the ordinary rubber heel, and their durability is assured by the use of good rubber. [National Heel Co., 127 Duane street, New York.]



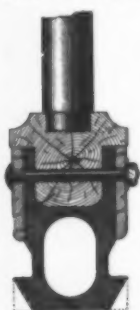
THE "WHITE VULCAN" GOLF BALL.

A NEW rubber cored golf ball, made under the patents of Charles T. Kingzett, is known as the "White Vulcan." A novel feature is that the cover throughout is made of white Gutta-percha. Instead of being white only on the surface, as in the case of the painted golf balls, the material in this case is "all white." The Kingzett balls are made by the use of specially devised machinery, by means of which the rubber used in the core is wound under the highest possible tension. The ball here illustrated is guaranteed against all faults for 54 holes of play. [The Improved Golf Ball Co., Locksley street, Limehouse, E., London.]



BRODERICK'S NON-SLIPPING TIRE.

JOHN K. BRODERICK (St. Louis) has patented a pneumatic tire, one form of which is illustrated herewith. The drawing shows in cross section (1) the air chamber, with a broad flat tread, with (2) rubber flanges extending above the air chamber to fit on either side of (3) a rib of the wooden rim, and to engage (4) two metal flange rings, the whole being held together by (5) bolts passing transversely through the rim. The novel form of tread is designed to prevent side slipping or skidding. The illustration relates to a "single tube" tire, but omits a view of the means for inflation. In a modification of the tire an inner tube is introduced by slitting the air chamber longitudinally along the point of contact with the rim. The method of attaching the tire renders creeping impossible.



DR. TULLAR'S HOSPITAL SYRINGE.

THIS syringe was perfected more especially for physicians and hospital use. The Tullar fountain bag, shown in the illustration, has an opening at the top sufficiently large to insert the hands and thoroughly wash and cleanse the inside; in fact, the bag may be turned inside out and scrubbed, which is often necessary when medications have been used. The large opening also facilitates quick and easy filling from a pitcher or other vessel. The lower portion being pointed causes a very rapid discharge, and also prevents any sediment from collecting or remaining in the bag. The soft rubber strap handle at top permits its suspension from any projection, which adds much to its convenience. The outlet pipe has a full quarter inch bore, insuring a quick flow. When using the new spiral spray irrigator, 3 quarts of water may be discharged in one minute. This new irrigator is easily and comfortably inserted, and owing



to the peculiar form of spiral ribs, it is self holding, and keeps the folds of the vagina dilated, permitting the 30 needle-spray jets from the central tube to reach every part of the passage at once. Thorough cleansing is quite necessary before examinations or operations. The peculiar spiral form of the irrigator ribs, surrounding the central tube of spirally arranged spray jets, causes the fluid to discharge in all directions, which simultaneously comes in contact with the entire dilated surfaces. This is of great advantage when applying hot water or medicated injections. The enema pipes have three outlets arranged obliquely which permits of the pipe end being perfectly smooth and rounded. [The Seamless Rubber Co., New Haven, Connecticut.]

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of September, 1905, and for the first nine months of five calendar years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
September, 1905....	\$100,505	\$174,083	\$ 211,455	\$ 486,043
January-August....	755,988	770,411	1,915,845	3,442,244
Total	\$856,493	\$944,494	\$2,127,300	\$3,928,287
Total, 1904.....	647,245	844,802	1,779,256	3,271,303
Total, 1903.....	633,744	628,592	1,855,756	3,118,092
Total, 1902.....	513,636	718,759	1,467,000	2,699,395
Total, 1901.....	447,653	567,407	1,321,115	2,336,165

THE NEW MEXICAN TARIFF LAW.

FOLLOWING the new monetary law of Mexico, effective since May 1 last, by which the gold standard was adopted, fixing as the unit the peso, equivalent to 49.8 cents United States currency, and the resulting lower and more steady rate of foreign exchange, a new customs tariff schedule was promulgated, and this took effect September 1, 1905. The following items comprise the references to rubber manufactures in the new schedule, the rate being specified (1) in pesos per kilogram (legal weight) and (2) the equivalent in United States gold per 100 pounds, the latter figures being supplied by THE INDIA RUBBER WORLD:

CLASSIFICATION.	Mexican Per Kilo.	United States Per 100 Lbs.
Rubber belting [on gross weight].....	\$0 11	\$2.49
Rubber hose.....	.12	2.71
Packing of all kinds.....	.04	.90
Rubber footwear.....	1.00	22.59
Rubber sheets, with or without cl th.....	.10	2.26
Dental rubber.....	3 00	67.77
Rubber erasers.....	.50	11.30
Gutta-percha [evidently including rubber] and celluloid articles, not specially mentioned...	.45	10.17
<i>Elastic webbing:</i>		
Cotton—over 4 centimeters wide ..	.66	14.91
Cotton—not over 4 centimeters.....	1.00	22.59
Wool—over 4 centimeters wide.....	.90	20.33
Wool—not over 4 centimeters.....	1 60	36.14
Silk—over 4 centimeters wide.....	1.50	33.80
Silk—not over 4 centimeters.....	3 50	79.07

By "legal weight" is meant the weight of the goods together with that of their interior packings—wrappers or the like—being enclosed in the outer packing case in which imported. No account is taken of the weight of the outer packing case where such is used. The former provision relating to a free zone 20 kilometers wide along the northern boundary of Mexico, in which imports were subject to only 10 per cent. of the regular duties so long as they remained within the zone, has been abolished.

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED SEPTEMBER 26, 1905.

- N**O. 800,136. Lawn sprinkler. [Sprinkler head.] B. Brown, Long Beach, Calif.
- 800,231. Unloading, storing, and reclaiming apparatus [involving the use of conveyor belts]. L. Moss, New York city, assignor to Robins Conveying Belt Co.
- 800,237. Infant's band or shirt. C. E. Ovenshire, Minneapolis, Minn.
- 800,239. Horseshoe [with elastic spring bar]. G. B. Paul, Clinton, Mo.
- 800,254. Fountain sponge. G. H. Willis, assignor to The N Tire Co., both of Chicago.
- 800,269. Tool for removing and replacing cushion tires. T. P. Corboy, Columbus, Ohio.
- 800,291. Brush [for shaving; with bristles set in rubber handle]. F. Graul, assignor to Rubber and Celluloid Harness Co., both of Newark, N. J.
- 800,292. Pneumatic carpet renovator. C. Gunderson, Milwaukee, Wis.
- 800,307. Vehicle tire. A. de Laski and P. D. Thropp, Trenton, N. J.
- 800,308. Vehicle tire. A. de Laski, P. D. Thropp, and H. Deck, Trenton, N. J.
- 800,357. Vehicle tire. F. Burnham, Fresno, Calif.
- 800,366. Vehicle tire. C. W. Faltoute, Summit, N. J.
- 800,420. Toy. J. D. Washington, Pittsburgh, Pa.
- 800,467. Elastic bandage. H. Myers, Philadelphia.
- 800,618. Infant's band or shirt. C. E. Ovenshire, Minneapolis, Minn.

ISSUED OCTOBER 3, 1905.

- 800,634. Rubber horseshoe. W. Downs, Toronto, Canada.
- 800,640. Elastic tire for vehicle wheels. H. Gilardoni and H. Le Riche, Paris, France.
- 800,784. Cushioned tire. E. C. Bailey, Cromwell, Conn.
- 800,809. Pneumatic tire guard. T. H. Landley, Cedar Rapids, Iowa.
- 800,835. Vehicle wheel [with rim comprising a tire locking device]. F. A. Selberling, Akron, Ohio.



800,835.



800,883.

- 800,864. Tire armor. J. C. Moore, New York city.
- 800,883. Damper cord, weather strip, and door cushion. D. Schuyler, Bridgeport, Conn., assignor to The Perfect Sliding Door Co., Los Angeles, Calif.
- 801,019. Fountain syringe [with means of attachment to a stationary faucet]. C. H. Kintner, New York city.
- 801,080. Pen attachment. E. F. Hicks and E. E. Hicks, Whitehall, Ill.
- 801,083. Vehicle wheel [with resilient tire]. J. K. Holtmann, St. Louis.
- 801,115. Antislipping device for tires. W. J. Smith, Canastota, N. Y.
- 801,145. Toy ball. J. F. E. Feltner, Leadville, Colo.
- 801,150. Pneumatic tire. J. A. Murphy and W. S. Manning, Holyoke, assignor to Manning Mfg. Co., Springfield, Mass.

ISSUED OCTOBER 10, 1905.

- 801,209. Pneumatic tire valve. L. K. Buck, Freehold, N. J.
- 801,210. Hose nozzle. W. Burnett, Cambridge, assignor of one-half to W. K. Mason, Brookline, Mass.
- 801,228. Hose or pipe coupling. H. Duffin, Auckland, New Zealand.
- 801,263. Wheel [with rubber tire] for roller skates. B. S. Peard, New York city.

- 801,273. Packing ring. S. Schultz, assignor of one-half to C. Bank, both of Schenectady, N. Y.
- 801,359. Pneumatic tire. H. W. C. B. Cave, London, England.
- 801,460. Insect destroyer [having a flexible tube and discharge nozzle]. F. Koehel, New York city.
- 801,556. Truss. J. K. Stockton, New York city.
- 801,610. Method of manufacturing golf balls. E. F. Ross, Newark, N. J., assignor to The Perfect Golf Ball Co., New York city.
- 801,632. Vehicle wheel [with solid rubber tire]. T. Appleton, New York city.
- 801,720. Inflation valve. J. E. Keller, Jr., Litchfield, Conn.
- 801,813. Art of making playing balls. F. H. Richards, Hartford, Conn.

Trade Marks.

- 5,911. Rubber boots. Goodyear Rubber Co., New York. *Essential feature.*—The representation of a man and the stern portion of a boat. The man is shown as wearing hip boots and a fisherman's hat and as pushing the boat from the shore into the water. Upon the stern of the boat are the words LONG SHORE. Projecting from the boat is an oar. In the background are clouds and birds, and upon the horizon appears a sailboat. The whole is inclosed in a circular border, and associated with said representation are the words LONG SHORE.
- 12,235. Waterproofed textile belting. The National Belting Co., Lawrence, Mass. *Essential feature.*—The word TEXTOL.

ISSUED OCTOBER 17, 1905.

- 802,005. Metallic tread for resilient tires. W. C. Lyon, Hyattsville, Md.
- 802,339. Inhaler. A. de Trey, Philadelphia.

Trade Marks.

- 6,378. Rubber boots and shoes. Lambertville Rubber Co., Lambertville, N. J. *Essential feature.*—The word SNAG.
- 6,379. Rubber boots and shoes. *Same.* *Essential feature.*—The word SNAGS.
- 7,473. Elastic pads and cushions for the bottoms of boots and shoes. Tredair Rubber Co., Boston. *Essential feature.*—The word TREDAIR.
- 7,713. Rubber boots and shoes. Lambertville Rubber Co., Lambertville, N. J. *Essential feature.*—The hyphenated word COCK-OF-THE-WALK, associated with the representation of a strutting rooster.

ISSUED OCTOBER 24, 1905.

- 802,389. Tire. [Steel band, with resilient cover of rubber and canvas.] E. Gregg and T. H. Hirst, Birmingham, assignors to W. K. D'Arcy, Stanmore, England.
- 802,462. Hose coupling. C. W. Martin, Dunkirk, N. Y., assignor to Martin Car Heating Co., Chicago.
- 802,484. Moistening device [for envelope flaps and the like]. J. Speir, Harrogate, England.
- 802,564. Spraying apparatus. W. G. Hall, Burdett, N. Y.
- 802,600. Tire. [Pneumatic, with special tread.] D. R. and O. D. Salisbury, Owosso, Mich.
- 802,643. Vehicle wheel [with segmental rubber tire]. C. E. Huxley, Chicago.
- 802,668. Fountain pen. H. Taylor, Waterville, N. Y., assignor to Aikin, Lambert & Co., New York city.
- 802,703. Tire fastener. [For detachable pneumatic tires.] T. Midgley, Columbus, Ohio.
- 802,711. Rubber dam sheeting. [*Claim.*—As a new article of manufacture a composition for the manufacture of scented rubber goods consisting of pure rubber, solid perfumes of uniform chemical constitution finely distributed throughout the entire mass and sulphur from the process of vulcanization and adapted to be rolled out into thin sheetings.] W. F. A. Schrader, Brooklyn, assignor to Traun Rubber Co., College Point, N. Y.
- 802,735. Pneumatic tire protector. [Serrated metallic sheathing] P. O. Casavant, Point St. Charles, Canada.
- 802,746. Elastic tire. A. A. Gilles, Nogent-sur-Marne, France.
- 802,806. Wheel tire. [Inflatable and non collapsible.] H. G. Fiske, assignor by mesne assignments to Morton Trust Co., trustee, both of New York city.
- 802,853. Hose coupling. H. Garner and S. T. Davis, Media, Pa.
- 302,902. Elastic tire [“consisting of ground factice more or less closely pressed and inclosed in a hose or hose like covering of India-rubber, leather, woven fabric or similar material”]. W. Alexander, Charlottenburg, and L. Posnansky, Berlin, Germany.

802,905. Tire inflating means [actuated by the motion of the vehicle]. G. A. Bobrick, Los Angeles, Cal.

Trade Mark.

9,990. Fountain pens. L. E. Waterman Co., New York city. *Essential feature.*—The representation of a globe and a fountain pen, in which the pen is shown as passing through the globe.

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1904.

* Denotes Patents for American Inventions.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 4, 1905.]

- 13,052 (1904). Horseshoe pad. J. Bamber, Clayton, Manchester.
- 13,091 (1904). Elastic tire [having a metallic layer with a projecting head fixed on a grooved metal rim by a ring]. W. Strück, Friedensburg, near Berlin.
- 13,118 (1904). Machine for making golf balls by winding rubber cord or tape upon the cores of said balls. J. P. Cochrane, Edinburgh, and J. Jackson, Dundee.
- 13,198 (1904). Hose reel. A. W. Clayden, Exeter.
- 13,298 (1904). Pneumatic tire. [For preventing puncture an endless strip of compressed leather is inserted between the air tube and outer cover.] M. G. Plane and G. Phillips, Colchester.
- * 13,411 (1904). Mouth piece of hard rubber for tobacco pipes. C. Elkin, Jersey City, New Jersey.
- 13,445 (1904). Tobacco pouch. A. Frankau & Co. and H. I. Livermore, London.
- * 13,446 (1904). Machine for cementing soles to shoes with rubber. G. L. Rollins, Bridgewater, Massachusetts.
- 13,493 (1904). Pneumatic tire. [Concave sheet steel series arranged to overlap the length of rubber and clamped in position, the whole being then covered with canvas and placed between the air tube and outer cover.] F. Peace, North Woodseats, near Sheffield.
- 13,558 (1904). Heel pad for boots. H. T. Wilkins and G. Denton, London.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 11, 1905.]

- 13,660 (1904). Pneumatic tire and means for attaching same to wheel rims. C. W. Pradeau, Shephers Bush, London.
- 13,646 (1904). Pneumatic tire protector [formed of an old outer cover with the beading cut off and secured to the rim by straps or buckles]. F. D. Lyon, Hove, and G. W. Brown, Brington, both in Sussex.
- 13,687 (1904). Syringe [for the cure of diseases in animals]. A. Hepnar, Kassel, Germany.
- 13,783 (1904). Pneumatic tire [constructed in segments which may be inflated]. A. Hasperg, Baden-Baden, Germany.
- 13,784. Pneumatic tire. [To prevent bursting the outer cover is formed with a groove at each side in which engages the claw-like edge of the rim.] *Same.*
- 13,799 (1904). Pneumatic tire. [Outer cover formed with hard cores and beaded edges fitting into recesses in the sides to prevent creeping.] W. A. Sanky, Sutton, Surrey.
- 13,854 (1904). Rim for pneumatic tires. [Fitted with detachable side flanges to facilitate attachment.] M. Korth, Köln-Raderberg, Germany.
- 13,861 (1904). Artificial limbs [constructed with a sheath and pneumatic pad for the reception of the stump]. S. Rosenfelder, Nürnberg, Germany.
- 13,910 (1904). Elastic tire. R. Stone, Wellington, Shropshire.
- 13,929 (1904). Golf balls [with core molded from a composition formed by mixing solutions of India-rubber and Gutta-percha in naphtha; the core is covered with Gutta-percha]. R. Hodgkinsons, Victoria, Australia.
- 13,935 (1904). Tire pump. D. Rowe and J. Stobert, Wanganui, New Zealand.
- * 13,948 (1904). Elastic tire [and means for attaching same to rims; being what is called in the United States the "Hartford Perfected Dunlop" tire.] T. Midgley, Columbus, Ohio.
- 13,964 (1904). Pneumatic tire. [Slipping prevented by placing on the tread a series of metal shoes adapted to receive wooden blocks.] L. S. Dyer, Craven Arms, Shropshire.
- 14,024 (1904). Waterproof coats [with tubular collar through which passes a drawstring to facilitate putting on and a close fit]. A. Dunhill, London.
- 14,041 (1904). Gardening syringe. A. H. Gale, London.

14,097 (1904). Sole and heel for boots. H. Markus, Manchester, and Barnwell Machine Co., Droylsden Rubber Works.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 13, 1905.]

- 14,251 (1904). Pneumatic tire protector [of leather, embracing all that part of the tire uncovered by the rim]. R. M. Meyer, London.
- 14,259 (1904). Elastic tire [composed of metal springs fitting one inside the other]. J. Barker, Oldham, Lancashire.
- 14,284 (1904). Sole and heel protector. H. J. Burb, and J. H. Cox, Greenock, Renfrewshire.
- 14,298 (1904). Elastic tire [formed of cork molded to the form of the rim, to be used with or without a cover of rubber]. H. E. Haynes, Hove, Sussex.
- * 14,439 (1904). Wheel formed of two discs with flanged edges to support the tire. G. W. Sanford, Thomaston, Connecticut.
- 14,459 (1904). Tire repairer. [In repairing inner tubes the patch is held in position by a metal clasp.] V. B. Cashin, London.
- 14,477 (1904). Appliance to aid in walking and running; the joints formed of armored rubber tubes, coated with Pará rubber. C. V. Czerinejewo, Bromberg, West Prussia.
- 14,627 (1904). Trouser clips, consisting in part of elastic bands. H. Grafe, and P. Kaiser, Weimar, Germany.
- * 14,644 (1904). Respirator [for firemen and miners]. A. A. Sherman and C. E. Chapin, Berkeley, California.
- 14,664 (1904). Elastic tire [formed with a number of isolated chambers]. A. Ducasble, Neuilly (Seine), France.
- 14,703 (1904). Sole and heel protector. [Tips for soles and heels of boots consist of different shaped pieces of leather, each having a correspondingly shaped undercut recess adapted to receive a flanged rubber pad.] W. Jayne, Knowle, Bristol.
- 14,740 (1904). Pneumatic tire. [To prevent puncture or slide slipping, armored bands are secured to tires by lashes or ties of Balata, leather, canvas, etc.] W. P. Thompson, London.
- 14,760 (1904). Pneumatic tire. [Slipping and puncture prevented by constructing a tread with blocks of highly compressed canvas and rubber.] L. Johnstone, Prestwich, Lancashire.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION).

- 353,681 (April 25, 1905). Société anonyme des Établissements Falconnet. Tire.
- 353,655 (April 22). M. Berthe. Rubber stamp.
- 353,887 (May 2). Société française du Caoutchouc artificiel "Elastophor". Elastic tire.
- 353,911 (May 3). Société Michelin & Cie. Metallic rivet or button with hard metal cap, for the outer covering of tires and for anti skidding bands.
- 353,912 (May 3). Société Michelin & Cie. Rivet consisting of a tempered steel head, and shank of untempered steel or iron, made of one piece with the head, for the outer covering of tires and for anti skidding bands.
- 353,756 (April 28). Société Générale de procédés d'extraction du Caoutchouc. Machine for barking roots and lianes.
- 353,754 (April 28). A. Berguerand. New method of putting rubber tips on shoes.
- 353,790 (April 28). G. Aranyl. Pneumatic pad for trusses.
- 353,892 (May 3). Dupont. Band of spongy and elastic tissue, either rubber covered or impervious on one of its surfaces.
- 353,993 (May 5). McConechy. Pneumatic tire.
- 354,049 (May 6). F. & P. de Coninck. Elastic tire.
- 354,051 (May 6). G. A. Ström. Compound pneumatic tire.
- 354,116 (May 8). M. Quidet and E. Noé. Elastic tired wheel.
- 354,175 (May 10). L. M. Robertson. Elastic tired wheel.
- 353,995 (May 5). W. H. Story. Process for the manufacture of a celluloid substitute from horn, ebonite, and the like.
- 354,242 (May 12). C. Rossel. Cover for elastic tires.
- 354,262 (May 13). J. Tennant. Pneumatic tire.
- 354,277 (May 13). L. Johnstone. Elastic tire.
- 354,363 (April 17). J. Imbert. Rubber tired wheel.
- 554,374 (May 13). C. Nielsen. Valve for pneumatic tires.
- 354,384 (May 17). E. L. A. Olivier. Pneumatic tire.
- 354,410 (May 19). F. Thevenot. Vehicle tire.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsell, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

TENDERS FOR AIR BRAKE HOSE IN GERMANY.*

THE saying that small things often produce great results has long since proved true, and small things should therefore always have our careful attention. But in cases where, for instance, the safety of the traveling public is concerned, we undoubtedly have the right to demand that the most minute attention be given even the smallest object capable of preventing danger. A brake hose may be said to be a rather unimportant article in itself, yet much may depend on it at critical moments. Should some critic, however, conceive the idea of testing some of the air hose in use at the present time, in respect to its component parts, and especially as to the percentage of good rubber found therein, he might easily make the sensational discovery that he had been testing a piece of rubber hose in the composition of which the most important part, viz.: the India-rubber, had been almost entirely omitted. This assertion may appear somewhat bold, in fact, almost unworthy of belief, and yet it is justified. It is an actual fact that railway brake hose can be found that can scarcely be called rubber hose.

The manufacturers, however, are not at fault, nor can the railway officials be made responsible, these deplorable results being due to the justly criticized system of calling for bids or tenders. A study of the results of this system establishes the surprising fact that the prices quoted show a continuous decline rather than increase, in spite of the repeated advances in the price of crude rubber. Those who desire to be successful in submitting tenders for brake hose must at the present time make their offer as low as 3.50 to 4.00 marks per cubic decimeter. These are exceedingly low quotations, at which sellers do not like to furnish even the cheapest grade of garden hose.

Figuring the average specific gravity at 1.6 to 1.7, which corresponds to that of most of the brake hose in the market, the price per kilogram would be 2 to 2.50 marks [=21] to 27 cents per pound], while a medium grade of crude rubber, but by no means the highest grade, must be paid for by the manufacturer himself at the rate of 12 marks per kilogram [= \$1.30 per pound]. Even those not connected with the rubber industry may therefore readily judge of the quantity of such rubber that it is possible to use in brake hose to be sold at 2 to 2.50 marks. Such hose really deserves the name of rubber only because parts of old rubber shoes or similar substances are largely used in its manufacture.

The advance in the price of crude rubber has kept pace with the methods of utilization of waste material, which allows of a saving in crude rubber in the manufacture of certain classes of goods, or even of replacing it almost entirely. Under certain conditions this is not in the least detrimental to the interests of the consumer, for a material of this kind, provided it be of fair quality, is well adapted to take the place of new crude rubber, within certain limits. The manufacturers will always try, and are in fact, compelled to try to utilize advantageously waste material. Those who commence adding small quantities, will gradually increase the percentage, as long as they find that good results are obtained, until they at last reach a limit which compels them to halt.

Such a proceeding is entirely correct, but it requires a thorough knowledge of manufacturing as well as extensive experience, and above all great circumspection and discretion. All those products that may appear quite satisfactory at first, and

seem to answer practical requirements, may not prove successful afterwards. They will often, after a short time, become like putty, losing their elasticity and no longer possessing any of the essential qualities of rubber. Such goods will soon become useless. In such cases it is necessary to make practical experiments and to await results, before offering novelties of this kind to the trade.

The question is, whether all manufacturers use such circumspection, though it appears self evident that they should do so, or whether there are some among them who impetuously and thoughtlessly refrain from making tests of any kind. No one will assert that none of the latter class are to be found in the rubber industry, and there are, perhaps, more of them than appears desirable for the interest of the trade. We have often enough had occasion to wonder at fabulously low quotations, but they quite often find their explanation in the serious disappointments following the use of such low priced products. The practical man in the trade asks himself in astonishment how it was possible to even offer such goods, when even the most superficial practical tests would have shown the deficiency of the material. Investigation usually shows that such tests have undoubtedly not been made at all, but that the goods have been cheaply manufactured in a haphazard way, leaving it to the customer to dispose of them as well as he can. We do not, however, wish to assert that such cases, in which the goods have been made in a careless way, always end in disappointment. They quite often turn out comparatively well, and this is, in fact, the most serious side of the question, as it encourages this class of manufacturers. What do they care, whether they sustain a loss once in a while? There are always opportunities enough for making up for them.

As long as such disappointments, carelessly invited by the manufacturers, lead merely to the loss of custom and to such considerable or slight sacrifices by the consumer as may be measured in money, the matter is not so very serious. In such cases all parties concerned would have to stand the loss, which is usually not entirely undeserved. But when such experiments with carelessly manufactured, cheap goods are extended to supplies furnished the railways, the matter becomes very serious indeed. It is a fact that the system of tenders makes it very easily possible for railways to be supplied with unsufficiently tested manufactured goods, and this should be prevented, at least where such articles are involved as may affect the safety of the service. In such cases the railway should never be made a subject for experiments, and least of all in the matter of such supplies as brake hose, for which there is certainly no necessity of continually inviting new competition, on account of the question of price, and thereby to lower the quality of the goods.

The operation of railways offers exceptionally serious difficulties for establishing such reliable testing methods as will admit of forming a judgment of the qualities of the supplies when in practical use. Manufacturers are therefore usually satisfied with making such goods as appear to be about suitable for the purpose. The railways are consequently used from year to year as testing stations, and this is quite a serious matter. For a well appointed, well patronized D train [fast express], the price of the brake hose is such a small matter that its greater or lesser cost may be left out of consideration. All will agree that the highest possible quality of hose should be selected, as it is one of the factors on which the safety of the entire train depends.

* Translated from *Gummi-Zeitung*, Dresden, Jahrg. XX (1905) Pp. 73-74.

Is it justifiable, therefore, to use brake hose at about 3 marks [=71½ cents] a piece, representing about the lowest quality made, when there is an opportunity for obtaining hose of vastly more reliable and durable quality? Should a difference in price amounting to a few marks even be taken into consideration, where brake hose is concerned, in view of the purpose for which it is to serve? Certainly not! The bursting of a brake hose of insufficient quality may, at a dangerous moment, do enormous damage.

The question may be asked how it became possible to reach such conditions as these. It would appear that the management of the railway which would allow them to exist would be guilty of a very serious neglect of its duties. Still, their existence remains a fact, and though they certainly do not apply to all cases, the above remarks are applicable to some. Purchases are made by various methods, but usually by the system of tenders, and wherever this is done, the purchases will be determined by the cheapness of the goods. It is true that there are certain fixed provisions for the quality of the supplies, including the brake hose, and the samples are subjected to certain tests, but all of this does not prevent preference being given to low priced and low grade goods, to the detriment of more expensive supplies of higher quality, as long as the former have stood the test.

It is, of course, possible to apply the system of tenders in various ways, and we do not desire to assert that the lowest prices always obtain, but the mere possibility of such cases, in which the preference is given to the cheapest goods, even where such articles as brake hose are concerned, offers a sufficient ground for the condemnation of the system, as applied thereto.

Whenever, as is often done, the regulations provide for testing the cheapest goods first, and then proceeding with the higher grades, until an article has been found that will stand the test, the good medium and highest grades are as a rule practically totally excluded from the competition. Such a method of testing offers many advantages, but it may at the same time have serious disadvantages. Especially where such an article as rubber is concerned, it quite often happens that cheap goods will stand the test quite well, though they will not prove sufficiently durable in practical use. Cheap grades, especially such as are being placed on the market at the present time, often disintegrate more rapidly than the better grades, and this is a serious objection. Brake hose should last one year at least,* and the manufacturer must warrant his product for such a period, the requirements for practical service being formulated on this basis. For goods manufactured from sound, new rubber, such durability is not in the least unusual. When, however, senseless competition is allowed to continually drive prices down, and when waste material becomes the principal ingredient of the goods, conditions must arise which must be very seriously considered. We are undoubtedly at the present time approaching such conditions, and may very probably have already reached them.

We do not mean to deny that the hose is still able to serve its purpose, notwithstanding their extreme cheapness. Is there any necessity, however, of manufacturing brake hose, an article that may be of the highest importance, from all kinds of inferior substitutes, in the cheapest possible manner, while the use to which such hose is put, theoretically indicates the use of the best and most durable rubber material? Most certainly not for it surely seems ridiculous to try to effect a saving of a few pennies on brake hose, and thereby enormously increase the dangers of the traveling public.

*In the United States manufacturers are required to guarantee railway air brake hose for two years.—THE INDIA RUBBER WORLD.

We need not state that our railway authorities have no intention of creating such conditions. They are merely the victims of the system of competitive bidding, and no individual parties can be held responsible therefor. It is, however, the duty of the interested parties furnishing the supplies, to submit a presentation of the facts to the railway authorities, as soon as they notice the appearance and growth of serious drawbacks relating to the values and use of their products. A general condemnation of the system of competition bidding is useless, for no one would listen to it. But as soon as individual instances are specialized and the detriment proven in each case, there is no doubt that the railway authorities will agree to a practical investigation of the matter. If the unpopular system of tenders, when applied to railways and to rubber goods, is to be successfully attacked, the question of the supply of brake hose would certainly afford the best article for contention.

The objection that not many accidents caused by the bursting of brake hose have as yet been heard of, cannot serve as an excuse for present unfavorable conditions. Such accidents have already occurred, and they will still be within the range of possibilities, even though the highest grade of rubber hose were used, but the chances of their occurring are undoubtedly much greater when they are made from poor material than when they are of good quality, and this ought to suffice for the definite and lasting rejection of all inferior products. Unimportant as this matter certainly is for the railways, as far as the cost is concerned, it would not even involve a financial sacrifice, for the higher cost of high grade hose would be made up by its greater durability. We must, moreover, take into consideration, that with the much cheaper products of the last few years, the limit of the decline in quality has not yet been reached. The manufacturer will continue his efforts to cheapen his products still more, and as other means appear scarcely possible from a technical standpoint, the cheapening will have to be brought about by lowering the quality of the goods.

But how can an effective change be accomplished? The railways must, after all, purchase such goods as the manufacturers recommend as being of good quality, and such as the test apparently proves to be suitable! That is true, and this fact presents many difficulties, which we cannot fail to acknowledge. All desire to participate in the furnishing of supplies, and only a few receive the orders. This situation must first of all be changed. The only effective way would be for all manufacturers to furnish the supplies in equitable shares, and to manufacture the most practical railway supplies, in accordance with a definite plan, to be jointly agreed to. This need not refer to brake hose alone, but could be extended to all other kinds of rubber goods.

It would not prove difficult to come to an agreement regarding the best mode of manufacture, on the basis of conferences to be held for the practical discussion of the subject. It would become the duty of each manufacturer to be responsible for the appropriate manufacture of the part of the order assigned him, on the basis of precise directions, which could be readily supplied. If every one, from the workman up, who consciously aids in producing an inferior article, were to be subject to a fine, fraud could be efficiently prevented. After all, it may be assumed that all manufacturers would try to act honestly. The matter is well worthy of consideration, and speakers in favor of it may possibly appear.

AN advertisement now displayed in the street cars in New York is unquestionably of Hibernian origin. In the first place, it warrants every pair of dress shields perfect, and then offers to refund the money for those that are not perfect.

CONDITIONS AND EXTENT OF CEYLON RUBBER PLANTING.

TWO facts of importance in connection with the planting of rubber now in progress in Ceylon—and similar conditions are obtaining in the Malay States—are (1) the wide distribution of the work, involving the interest of very many people, and (2) the systematic manner in which the new culture has been undertaken. It is to be noted, by the way, that all planting of the more important products in those countries is conducted on a comparatively large scale—generally by companies (often owned in England), whose estates are placed in the hands of salaried managers of experience and proved capacity.

The account keeping of these estates is required to be as

carefully done as in a mercantile house or the office of a railway manager; with directors and shareholders to be satisfied, in the matter of returns, the estate manager must study every possible economy, while the best possible product must be obtained in order that good prices may be realized. Under such conditions is produced, for example, the Ceylon tea of commerce. Of course there are many privately owned plantations, but their methods do not vary, practically, from those on estates owned by companies. Not the least important consideration is the exchange of views and results, through the medium of the well sustained planters' associations, by which means whatever progress is made on one plantation results in the common

ESTATES WITH PLANTED RUBBER, IN KALUTARA DISTRICT, CEYLON.

ESTATES.	Proprietors.	Resident Managers.	ACREAGE.			Post Station.
			Cult'd.	Tea.	Rubber.	
Ambetenne	Cooper, Cooper & Johnson, Ltd.	C. Henly	522	452	a 70	Neboda
Arapolakanda	Eastern Produce & Estates Co., Ltd.	H. V. Bagot	604	401	b 20	Tebuwana
Bogahagodawatta	A. Sirimane	J. A. Sirimane	455	210	c 10	Bentota
Clontari	General Ceylon Tea Estates Co., Ltd.	K. A. Burne & Cond'r.	232	195	A 38	Neboda
Clyde	Clyde Tea Estates Co., Ltd.	G. G. Massy	303	240	63	Kalutara
Calloden	Rosehaugh Tea Co., Ltd.	R. W. Harrison	1233	789	d 444	Neboda
		A. C. Corbetta				
Eagle's Land	General Ceylon Tea Estates Co., Ltd.	J. P. Dove	160	160	e	
Elladuwa	Dimbula Valley Tea Co., Ltd.	A. Bawa	285	158	B 127	Kalutara
Ellekanda	Rosehaugh Tea Co., Ltd.	R. Garnier & Conductor	518	426	f 83	Horana
Frocester	J. E. H. Graham Clarke	J. E. H. Graham Clarke	46	....	46	Neboda
Gikiyanakanda	Lord Elphinstone	A. G. Glenie	1312	557	C 755	Neboda
Glanrhos	General Ceylon Tea Estates, Ltd.	J. P. Dove & Cond'r.	222	209	g 13	Neboda
Glendon	Heirs of R. Booth	R. J. Booth	300	250	50	Neboda
Halwatura	Anglo American Direct Tea Trading Co.	F. J. Wright	1172	1072	h 100	Ingiriya
		J. I. Hall				
Heatherley	Rosehaugh Tea Co.	R. W. Harrison	404	340	D 64	Neboda
		C. O. Macadam				
Kaluganga	Clyde Tea Estates Co., Ltd.	G. G. Massy	186	135	51	Kalutara
		A. Wood				
Liskillan	Clyde Tea Estates Co., Ltd.	G. G. Massy	176	143	33	Kalutara
		A. Wood				
Mahagoda	T. O. Van Rooyen	A. J. Van Rooyen	54	39	6½	Bentota
Malaboda	Lanka Rubber Co., Ltd.	C. Henly	165	....	165	Neboda
Middellena	Government of Ceylon	Conductor	20	....	20	Kalutara
Millewa	H. J. Pieris, J. P.	E. Fernando & Cond'r.	1105	1000	10	Padukka
Miriswatta	H. Don Carolis and L. F. Fernando	Conductor	125	35	90	Horana
Meegama	Rosehaugh Tea Co., Ltd.	R. W. Harrison	227	....	227	Bentota
		A. C. Corbetta				
Neboda Group	Neboda Tea Co. of Ceylon, Ltd.	R. Morison,	720	495	225	Neboda
		Alex. D. Callander, Actg.				
Neuchâtel	C. C. Mee	C. C. Mee	800	475	i 322	Anguruatota
		C. J. Adamthwaite				
Padukka	Rubber Plantations of Kalutara, Ltd.	C. L. Vizard	34	....	34	Padukka
Pallagodda (including St. Columb Kille)	Kalutara Co., Ltd.	L. C. S. Marshall	818	682	j 125	Bentota
		H. P. E. Lyford				
Pantiya	J. H. Strachan	P. W. N. Farquharson	565½	446½	k 117	Neboda
Perth (including Maputugalle)	Ceylon Tea and Coconut Estates Co., Ltd.	P. T. L. Wetherall	1047	410	l 80	Horana
		(R. H. Algie, Actg.)				
Polgahakanda	L. C. S. Marshall	K. A. Burne	243	227	E 16	Neboda
Putupaula (including Crurie)	Putupaula Tea Estates Co., Ltd.	H. A. Tipple	576	400	m 176	Neboda
Rayigam	Rayigam Co., Ltd.	A. J. Dawson	802	696		
		C. T. Sinclair			n 106	Padukka
Rogart (including Llangland)	Heirs of R. Booth	R. J. Booth	436	249	187	Neboda
Sirikandura	Mrs. Jeremias Dias	G. M. A. Perera	375	370	o 5	Matu. g Neboda
St. George's Group	H. V. Bagot, R. W. Harrison	C. Henly	386	....	386	Neboda
Talagalla and Knutsford	The Consolidated Estates Co., Ltd.	C. L. Vizard	640	617	p 21	Padukka
Tempo	F. G. McGuire and J. E. H. Graham	J. E. H. Graham Clarke	478	397	q 181	Neboda
	Clarke					
Tudugalla Group	J. H. Starey	Herbert Inglis	702	590	r 202	Neboda
Vogan and Iddagodde	Vogan Tea Co., Ltd.	W. N. Tisdall	1085	816	s 269	Neboda
		R. V. Grimwood				
Yatadola	Kalutara Rubber Co	C. Henly	374	100	274	Neboda

NOTE.—The italic letters (a, b, c) in the Rubber column indicate the number of additional rubber trees planted among tea on the same estates, as follows: a—10,000; b—35,550; c—12,000; d—78,900; e—12,000; f—20,000; g—16,000; h—30,000; i—3,500; j—14,297; k—3,000; l—31,810; m—45,000; n—30,000; o—5,000; p—47,000; q—25,000; r—30,264; s—24,000; total, 499,321 trees among tea, without the acre-

age being specified.

The SMALL CAPITALS (A, B, C) in the same column indicate the number of acres of tea interplanted with rubber: A—15 acres; B—30 acres; C—25 acres; D—30 acres; E—10 acres; total, 420 acres.

good. It is under such business conditions—it is by the experienced tea planters, as a rule—that the planting of rubber has been begun. The planters who are now reporting a profit from rubber are applying to it the business-like methods of accounting by which they have determined the rate of dividends to be paid on the capital invested in tea planting. There is nothing haphazard, therefore, in the beginnings of rubber in Ceylon, though there doubtless may be mistakes while the planters are gaining experience, just as mistakes occurred in the earlier days of tea culture.

With regard to the distribution of the rubber planting, a reference to the authentic "Ceylon Hand Book" shows that the new culture has been undertaken on hundreds of established plantations, many of which are now beginning to market rubber. The extent of rubber planting promises to increase largely in the near future, in many cases with a view to the ultimate giving up of tea. And there is a growing tendency to concentrate several of the existing plantations under one management, through the formation of new companies, of larger capital than in the past.

It may be of interest to some of our readers to see a census of rubber planting in one of the 38 Ceylon districts in which rubber has been planted. The district selected is Kalatura, in which exists nearly one fourth of the rubber planting in the colony. In compiling these figures from the "Hand Book" for 1905-06, only those plantations are noted on which rubber has been planted; the figures relate to the total acreage under cultivation, the acreage in tea, and that in rubber alone, while in the form of foot notes is indicated the additional planting of rubber on the same estates.

OAXACA RUBBER CO.

[Plantation near Ubero, state of Oaxaca, Mexico. Office: No. 29 Broadway, New York.]

A CERTIFICATE was filed with the secretary of state of New Jersey on October 24, 1905, changing the name of the Oaxaca Real Estate Development Co. to Oaxaca Rubber Co., and increasing the capital authorized from \$350,000 to \$1,250,000. This company, incorporated in 1900, was under contract to develop the plantation of the Isthmus Rubber Co. of Ubero, a Delaware corporation. The two companies have now been merged [See THE INDIA RUBBER WORLD, October 1, 1905—page 15.] and the affairs of the Isthmus company are being wound up. The idea is to no longer have an "inside" development company, but to have all persons in interest in the plantation share in any profits resulting from the development work. As matters now stand the land is capitalized at \$125 per acre, instead of \$350 as formerly. The present directors are: George S. Delano, Medford, Mass. (president); Caleb B. Leach, Middletown, Conn. (vice president); W. I. Overstreet, New York (secretary and treasurer); Edgar B. Bronson and Francis H. Ross, New York; Joseph T. Elliott, Middletown, Conn.; A. H. Chase, Norwich, Conn.; George R. Bissell, Columbus, Ohio; Jonathan R. Blackwell, Trenton, N. J.—The annual meeting of shareholders of the Oaxaca Rubber Co. will be held at the registered office in Jersey City on December 4.

BADGER MEXICAN PLANTERS CO.

[Plantation in the state of Vera Cruz, Mexico. Offices: 1444 Unity building, Chicago.]

THE capital of this company, organized in Wisconsin in 1903, has been increased from \$275,000 to \$1,000,000, all common stock. It has absorbed the affiliated Badger Mexican Plantation Co. (incorporated in Maine), and is a plain stock company. An important amount of the capital is now held by a number of expert Louisiana sugar men. The offices of the company have been removed from Racine, Wisconsin, to Chicago. The com-

pany's properties embrace the plantation "La Florencia," near Santa Lucrecia, state of Vera Cruz, Mexico, the rubber on which has been referred to in THE INDIA RUBBER WORLD. The company advise us: "We propose to devote most of our energies in the future to the production of sugar. What plantings we have in rubber, amounting to 450 acres, will be kept up, but nothing more will be done in this line probably for some years to come." The officers now are: William W. Allis, president; Frank K. Bull, vice president; Warren E. Fish, treasurer; and J. H. Mahony, secretary.

MEXICAN MUTUAL PLANTERS CO.

[Plantation "La Junta"; Sanborn postoffice, state of Vera Cruz, Mexico. Office: 907 Journal building, Chicago.]

A RECENT report of this company relates to the expiration of the five year contract under which the original development work was to be completed, and the prospective visit of a committee in behalf of the investors to report on the condition of the property. It is stated that the work has been completed in accordance with the company's prospectus, there now being under cultivation 2746 acres in rubber, 460 in coffee, and 127 in cacao, besides 1027 in pasture land and the "village tract" of 323 acres, comprising buildings, yards, gardens, and various fruits. The estate comprises 5554 acres, of which the area not above specified is to be reserved as forest land. This year 750 acres have been planted in rubber; 1000 acres were planted last year, and during the previous three years practically 1000 acres—all reported to be in excellent condition. The first planting of coffee has already become productive. It is stated that the company and its directors personally have put \$125,000 (gold) into the property, and have not yet taken out a cent in any form. Besides, shareholders in the corporation have subscribed for about 1000 of the 5000 bonds offered for public subscription. The company indicate a hopeful feeling in regard to the ultimate productiveness of the rubber, none of which is yet more than 5 years old. The plantation manager, Mr. James C. Harvey, who is personally interested in the neighboring private plantation "La Buena Ventura," is reported to have tapped experimentally 3000 six year old trees in this plantation, not so much for the purpose of determining the possible yield as to gain experience in tapping and to ascertain the quality of the product. The average yield of 1500 of the largest trees was 3 ounces. On another neighboring plantation 40 trees 6½ years old, tapped once, yielded an average of 4 ounces of rubber, and tapped again a month later yielded as much more. The manager felt that with more vigorous tapping ½ pound per tree might have been obtained at a single bleeding.

YIELD OF PLANTED RUBBER IN MEXICO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: You may be interested to know that in 1904 I took from 1000 rubber trees, 5½ years old, 84 pounds of dry rubber, which I sold for 75 cents per pound, and in 1905 I took from 500 of these same trees 167 pounds which sold for 85 cents per pound. The total cost of the first lot, including gathering, freight, brokerage, commission, custom house charges, etc., was \$19.20; cost of the second lot, with same charges, was \$32.73. These trees could have been tapped more heavily, but I am going slowly in this respect. Yours respectfully, A PRIVATE PLANTER.

Vera Cruz, Mexico, October 7, 1905.

* * *

PALENQUE Plantation and Commercial Co. (San Francisco) was incorporated September 22, 1905, under California laws, to plant rubber and coffee in Mexico; capital authorized \$1,000,000, in \$100 shares. Directors: R. Herring, J. P. Prutzman, J. W. Dayan, J. E. Polhemus, and James Watkins—all of San Francisco.

A CALL FOR MORE AIR BRAKE HOSE.

THE Interstate Commerce Commission at Washington has issued an order requiring an increased use of air brakes on freight trains. The original order required that on all freight trains not less than 50 per cent. of the cars should be operated with the use of air brakes, and said order has been in full force since July 1, 1904. The evident purpose of the law, however, was that ultimately all cars should be equipped with air brakes and that all the brakes should be used in running trains, and the commission has labored to the end of seeing that this condition should in time be reached. It has been necessary, however, to consider limitations which existed in the capacity of the railroads to adapt themselves to full compliance with the law, and on November 2 there was a hearing before the commission, attended by representatives of the railway companies, on the question of increasing the minimum of power braked cars in freight trains to 75 per cent. On November 15 it was decided by the commission that such condition would be insisted upon from and after August 1, 1906.

It was represented by the railway companies that such is the demand for transportation at this time that practically all their cars are in use, including many old cars which are not worth equipping with air brakes, and which it is intended to retire from use and break up as rapidly as car builders are able to supply new cars with which to replace them. Many railway companies reported that large orders for new cars had been placed which could not be supplied for months to come. It was in view of these considerations that the commission has granted to the railway companies a delay until August 1 next for raising the minimum of power braked cars to 75 per cent. Already, however, this minimum is exceeded on many railway lines, and the disposition of all the companies appears to be to equip their cars with air brakes to the fullest extent, feeling that such equipment tends to the greater safety of employees and the public, and increased economy in operation.

Practically complete returns from the railway companies on October 1, 1905, showing a total of 1,790,113 freight cars owned by them, of which 1,564,396 were equipped with air brakes. The difference was 225,717 cars, the equipment of which would call for 451,434 pieces of air brake hose. The commission had also the returns showing the use of 111,122 privately owned freight cars in the United States, practically all equipped with air brakes. For some time past all the rolling stock employed in the railway passenger service in the United States has been fully equipped with air brakes with results that have been universally appreciated.

SWEATING OF AFRICAN RUBBERS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Earlier in the year you were kind enough to insert several letters from me, re the "Sweating of African Rubbers." These letters were answered by several gentlemen who seemed unanimous in their convictions that the trouble was caused by the larger amount of resin contained in these gums when compared with those of different climes. I have always felt that their arguments were not based on facts, but from mere suppositions, especially when they failed to set forth any theories showing the why and wherefore of their reasoning. I have followed up my experiments, however, and am more convinced than ever that they were wrong.

You will remember that my demonstrations showed that from the same bag of Lopori were taken three samples—one of good clean gum, one much decomposed by being sweated, and

another which was a mixture of both. The first cured all right, the results were what they should be; the second was "altogether to the bad," and could not be cured; the third was not so bad, but it was not correct by any means. Analysis showed the same amount of resin in each. Additional resin, to the amount of 2½ per cent. was added to sample No. 1, and made no difference that could be detected.

My later experiments have been as follows: Took some Lopori under the same conditions as before, extracted the resin from each sample, and hung it in the drying room, subjecting the whole to a temperature of 90° F. The results were as before, only the best sample hanging more than 10 hours; then after adding 6 per cent. each of sulphur and litharge, I attempted to cure the same in a mold, giving it one hour, with 45 pounds pressure of steam (about 290° F.). The poor sample failed to cure at all; it hardened up, and was short and non elastic.

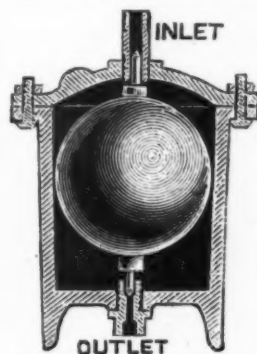
Now, Sir, I am convinced that the resin theory is a fallacy; that it is wrong; that the trouble consists altogether with the method of gathering, exposure to the sun, or the heat of the steamer hold when in transit. Yours very truly,

A. D. THORNTON.

Montreal, Quebec, November 20, 1905.

THE "EUREKA" STEAM TRAP.

THERE is probably no problem, the solution of which has given steam users more trouble than that which relates to the removal of the water of condensation from the pipes conveying steam to the power generator or the radiating medium. The attention which this matter has received is evidenced by the almost innumerable devices in the shape of steam



traps which have been offered to steam users, but each succeeding inventor has apparently, sought to introduce new complications of levers and bearings, until some engineers evidently consider a steam trap as one of the evils of his existence. A steam trap, in order to perform its functions satisfactorily, should be simple in construction, and so designed as to absolutely prevent leakage of steam when the water has been discharged. The inventor of the "Eureka" steam

trap, illustrated herewith, has designed an apparatus meant to meet these requirements fully.

The simplicity of the Eureka trap renders unnecessary any extended explanation. It is positive in action. The weight of the float and the pressure effective on the area of the valve stem keeps the outlet closed until the submergence of the float overcomes the weight and pressure; the float then lifts the valve wide open and the water is discharged until the float drops and closes the outlet. While the trap is discharging a rotating motion is imparted to the float by the outgoing water on which it rests, thereby causing the valve and the seat to be automatically reground at every operation.

The entire absence of levers, bearings, springs, etc., which usually cause trouble in steam traps, should recommend the Eureka to engineer or superintendents of rubber mills. The Eureka traps are manufactured in all standard sizes, and are sold at prices that compare favorably with the common trap. [Osgood Sayen, Arcade building, Philadelphia.]

THE SCRAP RUBBER MARKET.

CURRENT conditions are believed to favor a maintenance of the sustained position of the market for old rubber boots and shoes, and while prices are likely to show fractional fluctuations during the next few months under influences of a normal market character, no material changes in values are awaited. The present basis of quotations is not regarded as fictitious, but founded on legitimate conditions, to which some reference may be timely in this connection. The comparatively low range of prices which had prevailed for five years before the turn of a few months ago was the result of an understanding among the largest consumers of reclaimed rubber, whereby the sources of supply were apportioned to effective advantage.

This arrangement fully served its purpose, and the market followed a fairly even course, but in the meanwhile conditions were developing which were destined to play an important part in asserting the inevitable influences of supply and demand. The market for crude rubber had been in upward tendency during this period, and the fields of consumption for reclaimed rubber had shown substantial growth, absorbing to a considerable extent what surplus stocks had been accumulated.

Then, the development of the industries from which little returns were made lent a decided influence to the stronger tendency of the situation. The growth of the electrical industries has been especially great, and there had been a marked improvement in the carriage cloth trade, particularly in the West. The ultimate returns from this field in the shape of old rubber amount to almost nothing. There were other mechanical industries which were enlarging their operations, the returns from which were small and of inferior qualities. Then for the last two winters the boot and shoe trade had been active, enhancing considerably the consumption of reclaimed rubber.

Another factor which has been mentioned in this connection is the condition of affairs in Russia during the last year or more. This country had proved a source of comparatively large supply within recent years, but with the outbreak of hostilities and the attending disturbance of mechanical and agricultural conditions, the receipts of old rubber boots and shoes were largely curtailed. Under the conditions which have been mentioned, the general average advance of between 40 and 50 per cent. on all grades of scrap rubber since the opening of the present season would seem to be based on logical premises, and while the general state of trade throughout the country is of such a satisfactory character, the market for reclaimed rubber will be likely to maintain a firm position.

The range of quotations for old boots and shoes so far this season has touched extremes at $5\frac{3}{4}$ and 9 cents, but the season of 1898-9 brought even a wider range of prices, which fluctuated between $6\frac{1}{4}$ and $11\frac{1}{4}$ cents. The large consumers hold fair stocks and are not apt to prove a factor in the market until the opening of the new season, but the requirements of the smaller dealers over the balance of this season are likely to aggregate good proportions, reducing holders' stocks to an appreciable extent.

The course of the crude rubber market is attracting much interest, and as the effect of the higher level has already been noted in the increase in the consumption of reclaimed rubber, the position of crude may prove of further significance. The outlook for next season's supplies of scrap is not to be considered at this time, conditions being too indefinite to permit even a forecast. But meanwhile the demand for reclaimed rubber is constantly increasing.

LITERATURE OF INDIA-RUBBER.

CIRCULARS AND AGRICULTURAL JOURNAL OF THE ROYAL Botanic Gardens, Ceylon. Vol. III—No. 6, July, 1905. Pará Rubber in Ceylon. By Herbert Wright and A. Bruce. Colombo: 1905. [8 vo. Pp. 55-86.]

THIS is a careful summary of scientific investigations which have been applied to questions relating to climate, soil, elevation, manuring, and other like questions in connection with rubber culture, in a region which, longer than any other has been the seat of this industry, some of the trees which figure in these investigations being now 29 years old. The questions here considered have not been so thoroughly treated in any other report; besides which they have a practical value in their application. It might be added that a Colombo publisher announces having in press an extensive work on the Pará rubber tree and its culture, by Mr. Wright, who long has been on the staff of the Ceylon botanic gardens, and filled the position of director during the recent absence in England of Dr. Willis.

THE CEYLON HAND BOOK AND DIRECTORY, AND COMPENDIUM of Useful Information for 1905-06. To which is Prefixed a Statistical Summary for the Colony and Review of the Planting Enterprise up to July, 1905. Compiled and edited by J. Ferguson, C. M. G., M. L. C., Colombo: A. M. & J. Ferguson, 1905. [Cloth. 16mo. Pp. XL+1364+XLV+ folding tables. Price, 15 rupees.]

WHILE not issued with any special relation to the rubber interest, this has become a most important record of rubber culture, to which the compilers of the work, connected as they are with *The Tropical Agriculturist*, have for some years past devoted careful attention. One year ago the "Hand Book" reported the plantations of rubber alone in Ceylon at 10,034 acres, exclusive of an estimated equivalent of 26,201 acres of rubber planted with other crops. One year later the figures given are 23,285 acres for rubber alone; 8598 acres rubber in connection with other crops; and 2,600,000 rubber trees in other crops, the acreage of which is not estimated.

IN CURRENT PERIODICALS.

L'HÉVEA BRASIILIENSIS; sa Culture et son Exploitation dans le Sud Annam. By G. Vernet [chemist of the Pasteur Institute at Nha-trang. A comprehensive summary of the characteristics of the "Pará" rubber species and the conditions favorable for its cultivation, with a summary of results obtained to date in French Indo-China; with comments by G. Capus; illustrated].—*Bulletin Économique*, Hanoi. VIII-44 (August, 1905). Pp. 687-734.

La Production et la Consommation Mondiales du Caoutchouc. By H. Brenner [assistant director of agriculture and commerce of Indo-China; credit given to THE INDIA RUBBER WORLD for statistics].—*Bulletin Économique*, Hanoi. VIII-44 (August, 1905). Pp. 735-742.

The Preparation of Rubber at Mergui, Tenasserim. [Experiments at a government station in Burma.]—*The Indian Forester*, Allahabad. XXXI-9 (September, 1905). Pp. 530-534.

A SOLVENT FOR INDIA-RUBBER.

THE specification of British patent No. 6471 (1904), issued to Robinson and Clift for an India-rubber solution, states that pyridine and like bases or heavy bases from coal tar, bone oil, and the like are used as solvents for rubber in making rubber solution or in extracting rubber from waste. This is preferably done in a number of tanks into which the rubber within a cage is successively lowered, or by placing a cage in each tank and circulating the solvent through the latter so that fresh solvent first comes in contact with the nearly dissolved rubber. The rubber is precipitated by acid. Coal tar, benzol, naphtha, or other solvents not precipitated by acids may be added to take up the rubber after neutralizing, and wood spirit or amyl alcohol may be used instead of acid for precipitating, provided benzol, naphtha, or the like have not been used.

THE ENGLISH MOTOR AND CYCLE SHOWS.

THE yearly automobile show at the Olympia, London, opened on the evening of November 18, was larger by far than any of its predecessors and was recognized as marking an important and distinct advance in the motor industry of Great Britain. Large as was the show, it is understood that there would have been many more exhibits if space had been available. The value of the exhibits was estimated at upwards of £400,000 [= \$2,000,000]. The Society of Motor Manufacturers and Traders, under whose auspices the show was given, have been greatly encouraged by its success.

On the same evening occurred the opening, at Agricultural Hall, of the twenty-ninth annual Stanley show, now termed the annual exhibition of cycles, accessories and motors, for the reason that a considerable number of motor exhibits was included in the catalogue. The Stanley show remains, however, distinctively a cycle show, and both in the matter of exhibits and attendance the exhibition just closed indicated a continued wide interest in cycling in England. Not a single foreign cycle exhibit was to be seen, which is taken to indicate that the demand for foreign cycles in England has been checked. Motor cycles were less prominent than a year ago. There was evident a revolution in favor of more substantial cycle tires than for some time past, due to an appreciation that really good tires cannot be made without good rubber and this costs money. Tire prices, therefore, are higher this year.

In this connection it may be mentioned that a number of bicycle manufacturing companies have recently closed their business year with a most favorable showing of profits, some of the companies making more favorable reports than in any former year.

A RUBBER POLO BALL.

IN a report of a game of polo at Newport, Rhode Island, on September 2, between two teams of well known players—the winning side including Reginald C. Vanderbilt—the *New York Times* says:

"The feature of the match was the use of a new polo ball, being of hard rubber with a pneumatic covering. The ball was tried as an experiment at the request of William A. Hazard, secretary of the Polo Association. It seemed to lack speed when hit and had a tendency to bound in the air instead of rolling well over the ground. The well known sound also was lacking when the mallet came in contact with the ball. After playing with it a few minutes Mr. Agassiz cried, 'Throw out a good ball,' and the customary wooden ball was produced. The new ball was not tried again. It was the opinion of the players that the pneumatic ball seemed dead when struck compared to the wooden one. Harry S. Kip refereed the game."

Secretary Hazard has not given up his interest in having a rubber polo ball tested, and is certain that the players are prepared to consider such a ball on its merits. As to objections heard to it thus far he informs THE INDIA RUBBER WORLD:

"I was told that it seemed too dead; they could get too little distance from it. They said they liked the sound of the wooden ball—they could judge from the sound whether it had been hit square, and so on. They complained that it became wild readily, and for that reason they could not play it longer than a wooden ball."

Mr. Hazard is still negotiating with rubber manufacturers, one firm of whom write to us: "We have made a few pneumatic polo balls, and they have been pronounced excellent in

certain features by some players who have urged us to complete the ball in all its details. This we are trying to do, and we hope to bring it out next season."

EXPERIMENTS IN VULCANIZATION.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I am sorry to see that you have made an error in your reference to my vulcanizations on page 41 of your last issue. The compounds used in both cases were the same, viz:

100 parts Fine Pará
50 parts Litharge
3 parts Sulphur
50 parts Whiting

Vulcanizations of samples of this compound were had in 211 days at 105° F. average temperature. The vulcanization was perfect and the elasticity was good. With 5 and 7 per cent. of sulphur the elasticity was excellent. At a proper high temperature, somewhere under 600° F., there is no difficulty in vulcanizing a sample of the same compound, and the same thickness in less than one second. Very truly yours,

A. O. BOURN.

Providence, Rhode Island, November 6, 1905.

AN OFFICIAL REPORT ON CONGO RUBBER.

THE *Bulletin Official* of the Congo Free State presents the official statistics of the commerce for that state for 1904, preceded by a report to the king of the Belgians by Monsieur Droogman, secretary general of finances. After mentioning a decline in exports of Caoutchouc of 1,087,044 kilograms, as compared with the former year, M. Droogman says:

The above stated decrease in the rubber exports had been foreseen, and I have explained the reasons for it in the report which was attached to the trade statistics for 1899. The King knows that the government is ever watchful for the purpose of preventing owners of rubber gathering enterprises from working too strenuously in gathering crops, which might result in the exhaustion of our forests.

Annual replanting on the other hand is in continued progress on a considerable scale, as a result of the carrying out of the provisions of the decree of January 5th, 1899. The number of rubber *lianes* and trees planted under this law up to the present time, may be figured at nearly 13,000,000. The effect of these measures will make itself felt a few years hence by an appreciable advance, and we may then obtain a normal and constant output, thanks to the use of methodical and rational methods of gathering and replanting.

AUTOMOBILES IN RUSSIA.

THE *Dresden Gummi-Zeitung* points out that a field exists in Russia for the sale of German automobiles. The favor with which American automobiles were once received is not calculated to be permanent, and the French, with all their facilities in designing beautiful and good vehicles, labor under the disadvantage that while their products are well adapted for French highways, they are not strong enough to stand the strain of the rougher Russian roads. The German machines, being built more solidly, are better adapted to Russian needs, but they have yet to make a reputation in the latter country. Our contemporary, therefore, advises the leading German firms not to neglect the opportunity which the Russian market offers for their products.

A QUESTION OF EXPEDIENCY.—The rubber weed industry which has been under discussion by the board of trade and local newspapers for some time is a subject worthy the attention of anyone who may find it expedient to hustle out to make a dollar or so.—*Durango (Colorado) Herald*.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The Diamond Rubber Co. filed articles of incorporation under the laws of Ohio, on November 7, with an authorized capital of \$1000. On November 9 a certificate was filed, increasing the capital stock to \$3,500,000. The first act mentioned was a legal formality in connection with making the Diamond a domestic, instead of a "foreign" corporation. The company hitherto has been a corporation under the laws of West Virginia. The Diamond company began its existence in 1895, when it was incorporated in Ohio with \$50,000 capital. In 1898, when Messrs. Hardy, Miller, and Marks became interested in it, the company was reorganized under a West Virginia charter. In 1900 the capital stock was increased to \$100,000, and this has been added to gradually until in 1902 it became \$1,750,000. The recent doubling of the capital has been rendered necessary by the constant growth of business of the company and the necessity of enlarging the capacity of the plant. It is understood that the new stock will not go to any outside interests, but will be taken by those already identified with the company. The growth of the capacity and business of the company were referred to recently in THE INDIA RUBBER WORLD in the review of a brochure entitled "Seven Years—The History of a Success."

The hard rubber ball for bowling is now being manufactured to a considerable extent in this city, the demand having increased materially within a year. The cost of such balls in comparison with those of *lignum vitae* interferes with their introduction, but for all that many bowlers give them the preference. The weight of the standard ball has lately been decreased from 16½ to 16 pounds, which lessens the cost of production slightly. Hard rubber balls for bowling, made at College Point, New York, were shown at the Centennial Exhibition at Philadelphia in 1876, but on account of their extreme cost they soon dropped out of sight, until Joseph Dangel, superintendent of the Akron works of the American Hard Rubber Co., who is a champion bowler, brought them again into notice a year or two ago. It is stated that a new ball made only in part of hard rubber is being manufactured somewhere in this country.

[The Brooklyn Eagle, in an article on the increased interest in the game of tenpins and the growing popularity of hard rubber balls, mentions that the New York Bowling Association has altered its by laws to permit the use of the rubber sphere in tournaments. It mentions that Joseph Witzel, of College Point, New York, has in his possession one of the first rubber balls made, which has been in use on his alley for nearly 20 years, and is still being rolled every day.]

The girls employed from out of town for the new rubber shoe department of The B. F. Goodrich Co. are not left to take care of themselves when arriving here. The company has been advertising in the local papers for good homes for girls, and on their arrival at Akron they are met at the train and conducted to desirable lodgings. The company has purchased a large residence on one of the best streets to serve as a working girls' home, and its management is under the auspices of the Young Women's Christian Association. Though this was done but a short time ago, the home is already well filled.

The suit of Peter Kiefer against the Diamond Rubber Co., which has been mentioned at length in THE INDIA RUBBER WORLD, has been dismissed at the cost of the defendant. Kiefer filed suit in February, 1903, asking for \$1995 damages, charging that he had been discharged from the company's employ and his name placed upon a "black list", on account of

which he was unable thereafter to secure employment in any rubber factory in the city. The case was tried more than once, and attracted considerable attention at times, but in the end he recovered no damages.

The Diamond Rubber Co. are building a one story addition 60×90 feet to their South Akron branch, where the crude rubber they use is washed and ground. The need of more room has also made necessary a small addition to the main plant, in the extension of the receiving department. This will include a new office for the purchasing agent, H. W. Lantz.

The Buckeye Rubber Co., who are manufacturers of rubber tires in large quantities, have just completed a new building, 42×70 feet, designed to increase the capacity of their vulcanizing department. The new addition is already in partial use and will be running in full by the end of the year.

The Firestone Tire and Rubber Co. have been moving into the new addition to their factory, mentioned in the October INDIA RUBBER WORLD, though the additional power plant involved will not be installed for some weeks yet.

Mr. James A. Swinehart, of the Swinehart Clincher Tire and Rubber Co., who has returned lately from a visit to the West, extending as far as the Pacific coast, has been led to believe that a great increase in the use of automobiles is imminent in the states visited by him.

The factory of the Summit Rubber Co., at Barberton, was entered on several succeeding Sundays lately by three small boys who created considerable havoc. They began by blowing up rubber surgeons' gloves and bursting them, after which they began to carry away goods, and finally disabled the gas engines and cut the belting. Their identity was discovered and they were held for action by the grand jury, but later this order was modified and a light punishment was inflicted in view of their age, none of them being over 12 years.

RUBBER HOSE MANUFACTURE IN JAPAN.

THE capital stock of Nippon Gomu Kabushiki Kaisha (Japan Rubber Co., Limited), of Tokio, Japan, founded in 1900, has been increased gradually until it amounts now to 180,000 yen [= \$89,712]. The location of the office and factory is Hashiba Asakusa, Tokio, and the management is headed by Mr. Washicka Yamazuki, president of the company. The products of the factory embrace hose—suction, steam, garden, and air brake—belting, packing, valves, buffers, rubber seats, and so on. The company are devoted especially to the manufacture of hose, and particularly to suction hose, the manufacture of which hitherto has not been accomplished satisfactorily in Japan. Such hose is made by them of any diameter desired, and in lengths up to 60 feet. The company's mechanical equipment has been derived from Germany and England.

日本護謨株式會社

NIPPON GOMU KABUSHIKI KAISHA.

UNAPPRECIATIVE RUBBER WORKERS.

THE India-Rubber Journal learns that recently a meeting was held at Aston (Birmingham) to organize the rubber workers into a union, but as one speaker stated "he was surprised that the rubber workers were not there that morning to give some small support to those who were fighting their battle against their employers." Our contemporary concludes, therefore, that there does not seem to be much prospect of anything being done.

NEWS OF THE AMERICAN RUBBER TRADE.

DUNLOP TIRE AND RUBBER GOODS CO.

THE illustration on this page gives a view of the recently completed plant of the Dunlop Tire and Rubber Goods Co., which now is the style of the corporation until lately known as The Dunlop Tire Co., Limited, of Toronto, Canada. The smaller picture, in the upper left corner, represents the office building, fronting on Booth avenue. The factory extends back for a block to a siding off the Grand Trunk railway's main line east. The premises comprise one of the best factory sites in Toronto, and the land owned by the company will permit of considerable additions to the plant as the same may become necessary. There is no factory in Toronto more thoroughly fireproof, the floors, ceilings, walls, partitions, and stairways being of cement, reinforced by expanded metal. The walls are of heavy construction, to take on an additional story some day, and the power house is so located as to leave the sides of the building free for additional wings. The machinery equipment throughout is of the most modern type. A sprinkler system has been installed, being fed from the 40,000 gallon water tank shown in the illustration. On the tank, over the name DUNLOP are painted a pair of gigantic hands, in a position familiar to all who have seen the Dunlop tire advertising.

By way of a brief history, it may be mentioned that in 1894 The American Dunlop Tire Co.—itself an offshoot of the Dunlop Pneumatic Tyre Co. of England—then of New York, and afterwards of Belleville, N. J., and Hartford, Conn., opened a branch at Toronto, for the purpose of working the Welch bicycle tire patent and of supplying the Canadian trade with Dunlop tires. The trade grew to large proportions and in 1899 attracted the attention of a number of Canadian capitalists, who eventually purchased the Canadian business and floated the present company, styling it The Dunlop Tire Co., Limited. Just at this time the then manager, Mr. Richard Garland, resigned, to market the Australian Dunlop Co., and the present manager of the company, Mr. John Westren, was elected to succeed him. The company has continued to prosper, having branched out in a number of other lines—solid rubber carriage tires, horseshoe pads, and other mechanical goods, and now it is prepared to supply nearly everything in rubber.

Last April ground was broken for the new plant above described, and by October 1 everything was in running shape. The company purchased some 4 acres of land adjoining the railway, erected an office and factory building 250 × 50 feet, with separate compounding room, outside vulcanizing rooms and large outbuilding for its carriage department, spreader room, etc. These latter buildings are 150 × 30 feet. The company have selling branches at Montreal, Winnipeg, Vancouver, and St. John, and maintain a store in the business center of Toronto. They control rights under the Dunlop-Welch and "Clincher" tire pat-

ents—which have not expired on this side of the Atlantic—and the Doughty tire vulcanizing patents, and work under license the Firestone sidewire tire and the Ludington continuous tire process patents.

NEW JOBBING HOUSE AT CLEVELAND.

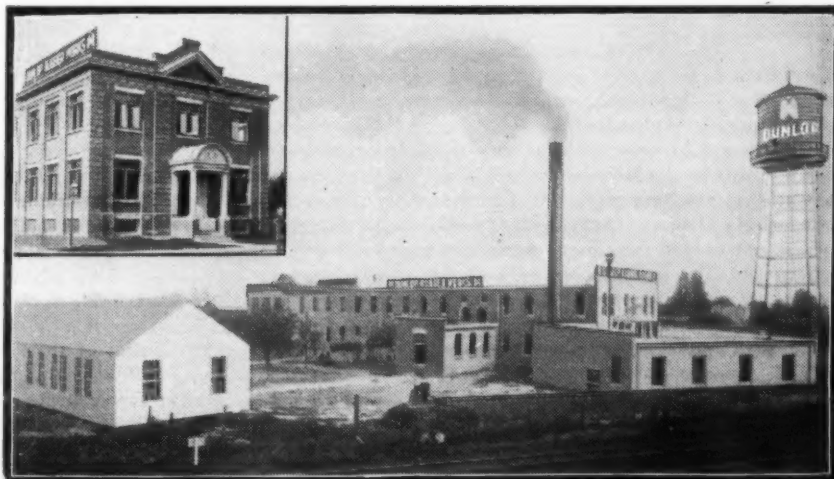
THE Forest City Rubber Co. (Cleveland, Ohio), the incorporation of which was noted in these pages last month, is composed principally of Messrs. William E. Crofut (president and treasurer) and John C. Poore (vice president and secretary). The former was connected with the Ohio Rubber Co. (Cleveland) for some time as treasurer and the latter for a number of years was leading traveling salesman for that company. Feeling that a field existed for a new company, and having a close personal acquaintance with the trade and a knowledge of its requirements, the gentlemen named have undertaken to carry on a jobbing business in a full line of mechanical rubber goods and such allied lines as automobile tires, interlocking tiling, and the like. They will carry the mechanical rubber goods line of the Voorhees Rubber Manufacturing Co. and also the leather belting of the Jewell Belting Co. The new house is favorably located at No. 22 South Water street, Cleveland.

A GROWING TRENTON FACTORY.

GRIEB Rubber Co. (Philadelphia) are engaged in increasing the equipment of their well organized factory at Trenton, New Jersey, the volume of production at which has been larger during the current year than in any other. They are preparing to add 4 presses to their plants, which will increase the number to 18, and have recently added a Birmingham calender of the latest pattern. The company are making, in addition to their well known specialties in heels, soles, and sheet soling, a varied line of products, such as hoof pads, bottle washers, gun recoil pads, massage machine rubbers, handles for tennis, ricket and golf clubs, and many other articles.

ARBITRATION OF BUSINESS DISPUTES.

THE New York Credit Men's Association, the excellent work of which has been referred to many times in THE INDIA RUBBER WORLD, has instituted an "arbitration bureau," to which its members are invited to refer for determination, disputes be-



PLANT OF THE DUNLOP TIRE AND RUBBER GOODS CO.

tween debtor and creditor, such as are bound to occur frequently and which in the past have often involved litigation, involving much expense and annoying delay. Further details regarding the new plan may be obtained from the secretary of the association at No. 320 Broadway, New York.

NEW YORK STOCK EXCHANGE TRANSACTIONS.
UNITED States Rubber Co.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Oct. 21	8,050	54 $\frac{1}{4}$	51 $\frac{1}{8}$	500	111 $\frac{3}{8}$	111 $\frac{1}{8}$
Week ending Oct. 28	8,090	54	52 $\frac{3}{8}$	2,445	110 $\frac{5}{8}$	110 $\frac{1}{8}$
Week ending Nov. 4	6,250	52 $\frac{3}{4}$	51 $\frac{1}{2}$	2,050	110 $\frac{3}{8}$	109 $\frac{1}{4}$
Week ending Nov. 11	11,110	51 $\frac{3}{4}$	49 $\frac{1}{2}$	1,050	109	107 $\frac{1}{4}$
Week ending Nov. 18	10,250	51 $\frac{1}{4}$	47 $\frac{3}{8}$	1,535	108 $\frac{3}{4}$	105 $\frac{1}{4}$
Week ending Nov. 25	28,100	55 $\frac{1}{4}$	51 $\frac{1}{8}$	4,025	112 $\frac{1}{4}$	108 $\frac{3}{4}$

THE SECOND PREFERRED STOCK.

THE new second preferred capital shares of the United States Rubber Co., details regarding which appeared in the last INDIA RUBBER WORLD (page 59), were formally admitted to trading on the Stock Exchange on November 1. More than a dozen firms interested in deliveries of the new stock met in the office of E. C. Benedict & Co. (New York) on November 1 to settle differences relating to the payment of dividends. Buyers of this stock "when and as issued" asserted that the regular dividend belonged to them, provided they bought the stock before the books closed on October 21 in connection with dividend payments. Holders of stock who send the new shares "when and as used" thought they ought to get the dividend payable October 31. The decision arrived at was in favor of the former class. Stock Exchange quotations for the new shares up to date have been as follows:

Week Ending—	Nov. 4.	Nov. 11.	Nov. 18.	Nov. 25.
Sales	500	500	1,100	3,750
High	79 $\frac{1}{8}$	77	78	81
Low	77 $\frac{1}{4}$	75	75	77

RUBBER Goods Manufacturing Co.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Oct. 21	500	37 $\frac{1}{2}$	37	100	105 $\frac{1}{4}$	105 $\frac{1}{4}$
Week ending Oct. 28	1,770	38 $\frac{1}{2}$	37 $\frac{1}{2}$	100	105	105
Week ending Nov. 4	900	38 $\frac{1}{2}$	37 $\frac{1}{4}$	—	—	—
Week ending Nov. 11	700	38	37 $\frac{1}{2}$	200	105	105
Week ending Nov. 18	100	37	37	200	104	103 $\frac{3}{4}$
Week ending Nov. 25	700	38 $\frac{1}{4}$	38	100	104 $\frac{3}{4}$	104 $\frac{3}{4}$

THE COMING AUTOMOBILE SHOWS.

THE sixth National Automobile Show, at Madison Square Garden, New York, will begin on Saturday evening, January 13, and continue through all of the following week. The show this season will be under the auspices of the Association of Licensed Automobile Manufacturers. While the list of exhibitors has not yet been given out it is understood that all the spaces will be filled and that this show will as usual be of great interest, not only in respect of automobiles in general but also of the rubber tire production.—This show is to be followed, as usual, by an exhibition, under the same auspices, in Chicago, in the week from February 3 to 10.

The sixth annual automobile exhibition of the Automobile Club of America, to be held January 13 to 20 in the new Sixty-ninth Regiment Armory—Lexington avenue and Twenty-fifth street, New York—will embody a very complete representation of the motor car industry, including accessories of every kind. In the allotment of space 204 concerns are represented, American makers being pitted against foreign, with products listed at every price from the lowest to the highest.

TRADE NEW NOTES.

THE Stockton Rubber Co. (Stockton, New Jersey), the incorporation of which was reported recently in these pages, have begun work in reclaiming rubber. The plant was equipped under the direction of Mr. Dominic J. Price, who, during a number of years, was well known as a capable superintendent of a rubber reclaiming factory and he is in charge of the management of the new company. The Stockton plant is equipped with a view particularly to rendering production economical.

—The directors of the Rubber Goods Manufacturing Co. on November 16 declared the twenty-seventh regular quarterly dividend of 1 $\frac{1}{4}$ per cent. on the preferred shares, out of earnings, payable December 15, to shareholders of record December 5.

—The directors of the Boston Woven Hose and Rubber Co. have declared the regular semi-annual dividend of \$3 per share on the preferred stock, payable December 15 to stockholders of record December 5.

—An emergency room, provided with a hospital bed and other conveniences, has been provided for the shoe department at the factory of the National India Rubber Co. (Bristol, Rhode Island), which already has proved its usefulness.

—The Buffalo Rubber Manufacturing Co. (Buffalo, New York) are understood to have doubled their sales during the past year. The company have now been in business for two years, having been incorporated in 1903, by Messrs. E. L. Toy and A. J. Commins, both formerly of the Alden Rubber Co., and now respectively president and treasurer of the Buffalo company. They manufacture various rubber specialties.

—The Merchants' Rubber Co., Limited (Berlin, Ontario), have arranged with an important jobbing house in New Zealand for the sale of their products in that colony and in Australia. The Merchants' company has grown steadily and its output was reported recently to have reached 3200 pairs of boots and shoes daily.

—Mr. Wilfred A. Joubert, who for some years was engaged practically in the exploitation of Balata in Dutch Guiana, has accepted a position with The Omo Manufacturing Co. (Middletown, Connecticut), who long have been users of Balata gum.

—New Jersey Car Spring and Rubber Co. (Jersey City) announce the opening of an office in Philadelphia—330 Drexel building—where they will submit samples and quotations on their extensive line of mechanical rubbers.

—The shareholders of the General Electric Co. are to vote December 5 on the question of increasing the capital from \$48,325,500 to \$54,162,750, to provide for the growth of the company's business. It is reported that the business of 1905 will materially exceed in volume that of last year.

—The Excelsior Hard Rubber Co. (Mineral City, Ohio) report that they are very busy. In addition to the line of hard rubber harness mountings which they have been making for some years, they are now producing hard rubber bowling balls.

—The Stamford Rubber Supply Co. (Stamford, Connecticut), have established agencies for the sale of their rubber substitutes as follows: Boston, No. 39 Tremont street, in charge of Earl E. Davidson; Trenton, New Jersey, in charge of E. B. Fulper.—*Yale Alumni Weekly* mentions Mr. Davidson as a member of the Yale class of 1900, as also was Mr. W. F. Gillespie, general manager of the Stamford company.

—The Canadian Rubber Co. of Montreal, Limited, are probably the largest buyers of advertising space in the Dominion. During the winter months the "Canadian" rubber boots and shoes are advertised in every daily and weekly newspaper in Canada, from the Atlantic to the Pacific, so that no reader can fail to know of these goods. Advertisements are printed in

three languages—English, French, and German—and an attractive pictorial display invariably forms part of the advertisement. An extensive portfolio of the advertising material prepared for the current season by the company's advertising manager, Mr. James Morris Carroll, by reason of the variety and originality involved, is most creditable to his department.

=Mr. Alexander McPherson, a representative of The Gutta-Percha and Rubber Manufacturing Co. of Toronto, Limited, has returned recently from a business tour of Australia and the neighboring colonies.

=The Hartford Rubber Works Co. have installed a coal-conveying plant for the more convenient and economical supply of coal to the power house of their plant which is referred to as being notably complete and satisfactory in operation. The system is that of the Robins Conveying Belt Co. and the rubber belt used is 18 inches wide, the length of the conveyor being 255 feet between centers.

=The tire trade of The B. F. Goodrich Co. in London will be conducted hereafter under their own name, instead of Single Tube Tires, Limited, as hitherto. At the beginning of 1898 the Messrs. Goodrich, in connection with two other important American concerns, formed a company for the joint exploitation of single tube bicycle tires in Europe. The other companies in time retired, leaving the Goodrich company in sole control of Single Tube Tires, Limited, and this name has now been dropped.

=Mr. Thomas W. McDowell, general manager of the Good-year Rubber Co.'s factory at Middletown, Connecticut, has been elected a director of the First National Bank of that city, to succeed C. W. Harris, resigned.

=B. Loewenthal & Co. (Chicago and New York) dealers in old rubber, announce the admission to their firm of Mr. Herman Muchlstein, who for an umber of years has been in their employ. He will continue in charge of their Eastern branch.

=Dyson Rubber Co. (Trenton, New Jersey) have been obliged of late to run their factory day and night to handle their orders on mats, tiling, and molded goods.

=The Kansas Rubber Co. (Olathe, Kansas), incorporated under the laws of Kansas; capital, \$100,000. Object, the manufacture of mechanical rubber goods and also, THE INDIA RUBBER WORLD is informed, "for reclaiming rubber by a strictly new and improved process that will devulcanize the rubber and remove the cloth and other foreign substances without in any way injuring the rubber." Officers: I. D. Hibner, president; Ed. Ripley, vice president; Luther Moore, secretary; Ole Hibner, treasurer. Charles A. Besaw will be superintendent. The Olathe *Mirror* mentions that Mr. Besaw has begun to sell stock in the new company and contracts will be let for the buildings when the necessary capital has been subscribed.

=Poel & Arnold (New York) have opened an office for the sale of crude rubber at Akron, Ohio, which will be in charge of Mr. Frank P. Lahey, who has been connected for the past 18 years with Poel & Arnold and their predecessors, and has become thoroughly acquainted with the crude rubber business and the demands of the consuming trade. His headquarters are Rooms 405-406, Everett building, Akron.

=National Heel Co., October 7, 1905, under New York laws; capital, \$300,000. Have acquired the assets and good will of the American Heel Tread Manufacturing Co., a copartnership producing a combination rubber and leather heel under the Joseph Martin patents. The officers, elected October 11, are: Joseph Martin, president; R. W. Weller, vice president; W. A. Marlborough, secretary-treasurer. Additional directors: Thomas Martin, New York, and G. W. Farrelly, Boston. Main

office, No. 127 Duane street, and factory, Nos. 2-4 Howard street, New York; Boston office, No. 56 Lincoln street.

=Schwab & Co., extensive waste rubber merchants in Philadelphia, have decided, on account of the demand for increased space made necessary by their growing business, to remove from their present quarters, No. 615 Webster street, to more commodious premises, early in the New Year.

A NEW GUAYULE FACTORY.

THE Torreon Rubber Manufacturing Co. was incorporated October 7, 1905, under the laws of Texas, with \$150,000 capital, to extract rubber from the Guayule plant, at Torreon, state of Coahuila, Mexico. The incorporators are F. E. Dowlen, Charles Perry, J. F. Pate, and R. L. Bonnett, of Torreon, Mexico, and H. A. Erbe, General William H. Stacy, and James H. Raymond, Jr., of Austin, Texas (where the headquarters of the company are to be). Mr. Pate, mentioned above, is a department manager of Schiess y Cia. (Torreon), extensive manufacturers of mining and other machinery, and interested to a large extent in the Torreon factory for making Guayule, which, according to an interview with General Stacy in the Waco (Texas) is already in operation, shipping its product to Germany.

PERSONAL MENTION.

TWO representatives of Vereinigte Gummiwaren-Fabriken Harburg-Wien—Ingenieur Herr Franz Grubitz and Herr A. S. Guthrie—while recently in the United States favored THE INDIA RUBBER WORLD offices with a visit.

=Major J. Orton Kerbey, who will be remembered as a former American consul at Pará and for his subsequent interest in crude rubber exploitation, has written a book on the region drained by the Amazon, which is announced to appear under the title "The Land of To-morrow" from the press of The John C. Winston Co., Philadelphia.

=Mr. Ernest E. Buckleton, secretary and general manager of the Northwestern Rubber Co., Limited (Litherland, Liverpool), after spending a vacation in the United States, including a few weeks on the Pacific coast, where he formerly resided for some years, sailed for home on November 15.

BRAZIL.—The Brazilian Rubber Trust, Limited, offer to lease all or part of their holdings on the island of Marajó, near Pará, or to sell the freehold. The estate embraces 170,000 acres, and is claimed to be producing about 150 tons of Pará rubber per year. This is an English company, successor to the Rubber Estates of Pará, Limited, formed in 1898. [See THE INDIA RUBBER WORLD, February 1, 1905—page 151.]

AN ASSAM PLANTER INVESTIGATES.—Mr. Thomas More, manager of the Jokai Tea Co., of Assam, has been in Ceylon during the last week inspecting some of the well known rubber estates. He has returned from a visit to Kalutara, and today went up to Matale. On the 26th proximo he will leave by the P. & O. steamer for the Malay States, where, it is said, he will buy rubber land for a syndicate that has £20,000 to lay out on rubber estates.—*The Times of Ceylon*, August 19.

TESTING RUBBER GLOVES.—A correspondent of the *Electrical Review* (London) writes: "It may be of interest to some of your readers for me to say that in testing rubber gloves I have found by inflating them with air, and then putting them under water, I have discovered very many small holes in new ones which would otherwise have been impossible to find. Quite recently I had to reject 24 per cent. out of a batch of new ones."

SALE OF RUBBER LANDS.—The government in Ceylon has been selling at public auction a number of lots of crown lands said to be suitable for rubber planting. At Kalutara on August 17 the Lanka Rubber Co. purchased 203 acres of such land for 16,300 rupees [= \$5,287.72], being an average of \$26.05 gold per acre. The total sales for the day amounted to 21,236 rupees [= \$5,888.96]. One lot of 14 acres was purchased in behalf of a Colonel Cox of Scotland—a fact indicating that Kalutara's fame as a rubber country has traveled far. Mention is made of the purchase by Colombo parties, in Moneragalla, of about 619 acres of land fully planted with tea, to be devoted to rubber, for 65,000 rupees [= \$21,087], or about \$34.07 per acre.

A TELEGRAM in the Pittsburgh Dispatch reports the filing at Steubenville, Ohio, of eight suits, by Edward Nicholson and others of that city, against the Vera Cruz Development Co., of Canton, Ohio, and its officers, directors, and special agents, alleging that improper representation had been made to induce them to invest money in the company's "La Esmeralda" sugar and rubber plantation, in Mexico. This company was mentioned in THE INDIA RUBBER WORLD, January 1, 1902 (page 104), as having been organized under Arizona laws, in July, 1901, with \$1,000,000 capital authorized, by leading citizens of Canton, and offering to sell shares on the installment plan.

REVIEW OF THE CRUDE RUBBER MARKET.

RUBBER prices are higher for practically all the grades for which quotations are given on this page. The first four months of the Amazon rubber season (beginning July 1) showed a gain over the figures of former years for the same months, but the receipts for November were smaller than for two years past, which fact has tended to offset the hopes which prevailed earlier in the season of an increased crop in resulting lower prices. The beginning of the rubber tapping season is dependent upon conditions of weather and water, in the rivers, and larger returns early in the year do not necessarily indicate an increased production, but only that the rubber tappers have got to work at an earlier date, or that conditions of transportation have been more favorable. It cannot be too often pointed out that any increase in the production of Pará rubber must be slight and very gradual, for the reason that the working force available is at all times limited and can be added to very slowly.

From all indications the demand for rubber of all grades is well sustained and likely to continue so indefinitely. With regard to the very important demand for rubber in the footwear trade, it may be noted that weather conditions so far in the United States have not been favorable to the distribution of the product among consumers, who naturally do not invest in rubber boots and shoes until the snow flies. At the same time however, manufacturers and jobbers count on the average demand for rubber footwear every winter, and it is only in exceptional cases that a winter ends without an increased demand for goods in this class. If the winter now opening should prove to be less favorable to the rubber footwear trade than usual, the effect upon the crude rubber market would not be felt until next spring, when the amount of unsold stock came to be inventoried.

As shown on another page, the November Antwerp sale resulted in considerably larger prices being realized than were anticipated, and the effect has been shown in a definite advance in all grades of African rubbers.

Receipts at Pará (including Caucho) since the beginning of the crop season have been as follows:

	1902.	1903.	1904.	1905.
July..... tons	1290	1280	1250	1450
August.....	1370	1230	1260	1300
September.....	1670	2010	1780	2200
October.....	2280	2440	2820	3580
November.....	2650	2980	2800	22655
Total.....	9260	9940	9910	11,185

[a—To November 28.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on November 30—the current date:

PARÁ.	December 1, '04.	November 1, '05.	November 30.
Islands, fine, new.....	125@126	118@119	119@120

Islands, fine, old.....	none here	none here	none here
Upriver, fine, new.....	129@130	121@122	122½@123½
Upriver, fine, old.....	none here	132@133	none here
Islands, coarse, new.....	72@ 73	68@ 69	71@ 72
Islands, coarse, old.....	none here	none here	none here
Upriver, coarse, new.....	96@ 97	89@ 90	90@ 91
Upriver, coarse, old.....	none here	none here	none here
Caucho (Peruvian) sheet.....	71@ 72	70@ 71	73@ 74
Caucho (Peruvian) ball.....	82@ 83	85@ 86	88@ 89

AFRICAN.

Sierra Leone, 1st quality	101@102
Massai, red.....	101@102
Benguella.....	82@ 83
Cameroon ball.....	69@ 70
Accra flake.....	26@ 27
Lopori ball, prime.....	111@112
Lopori strip, prime.....	94@ 95
Madagascar, pinky.....	91@ 92
Ikelemba.....	111@112

CENTRALS.

Esmeralda, sausage.....	84 @85
Guayaquil, strip.....	72 @73
Nicaragua, scrap....	82 @83
Panama, slab.....	64 @65
Mexican, scrap.....	82 @83
Mexican, siab.....	63 @64
Mangabeira, sheet.....	70 @71
EAST INDIAN.	
Assam.....	95 @96
Borneo.....	44 @45

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	5½200	Upriver, fine.....	6½200
Islands, coarse.....	2½200	Upriver, coarse.....	4½100
Exchange, 17d.			

Last Manáos advices:

Upriver, fine.....	6½000	Upriver, coarse.....	3½500
Exchange, 17d.			

NEW YORK RUBBER PRICES FOR SEPTEMBER (NEW RUBBER).

	1905.	1904.	1903.
Upriver, fine.....	1.29@1.32	1.09@1.21	1.00@1.10
Upriver, coarse.....	91@ 94	85@ 91	79@ 91
Islands, fine.....	1.26@1.29	1.07@1.16	97@1.08
Islands, coarse.....	69@ 72	59@ 67	60@ 70
Cameté.....	71@ 74	60@ 66	61@ 68

NEW YORK RUBBER PRICES FOR OCTOBER (NEW RUBBER).

	1905.	1904.	1903.
Upriver, fine.....	1.32@1.30	1.12@1.17	1.00@1.09
Upriver, coarse.....	89@ 93	86@ 90	83@ 91
Islands, fine.....	1.19@1.27	1.09@1.14	96@1.06
Islands, coarse.....	69@ 71	61@ 65	56@ 68
Cameté.....	70@ 72	61@ 65	56@ 67

In regard to the financial situation, Albert B. Beers (broker in India-rubber, No. 68 William street, New York) advises us as follows:

"During the first half of November there was almost no de-

BUSINESS OPPORTUNITY.

WELL known Liverpool and reputable firm of India-rubber Merchants and Importers are open to buy on commission for good American and otherwise act as required, etc. Address LIVERPOOL, care of THE INDIA RUBBER WORLD. [813]

MACHINERY WANTED.

WANTED.—Two roll Washer, 15 X 36. State whose make and where it can be examined. Address CASH, care of THE INDIA RUBBER WORLD. [873]

mand for paper, but towards the end of the month there has been some small buying by banks, rates running from 5½@6½ per cent. according to the grade of the paper. The outlook is for a firm market during the near future."

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.					
	Fine and Medium.	Coarse.	Total 1905.	Total 1904.	Total 1903.
Stocks, September 30... tons	251	66 =	317	44	97
Arrivals, October.....	742	447 =	1189	1080	868
Aggregating.....	993	513 =	1506	1124	965
Deliveries, October.....	797	482 =	1279	1115	883
Stocks, October 31...	196	31 =	227	9	82

PARÁ.			ENGLAND.		
1905.	1904.	1903.	1905.	1904.	1903.
Stocks, Sept. 30... tons	477	373	240	307	218
Arrivals, October.....	3350	2660	2381	878	793
Aggregating.....	3827	3033	2621	1185	1011
Deliveries, October...	3672	2868	2276	875	900
Stocks, October 31	155	165	345	310	111

1905.	1904.	1903.
World's visible supply, October 31... tons	2794	1921
Pará receipts, July 1 to October 31.....	7885	6611
Pará receipts of Caucho, same dates.....	575	499
Afloat from Pará to United States, October 31	971	736
Afloat from Pará to Europe, October 31.....	1131	900

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Notwithstanding a somewhat weaker tone for Pará's, firmness prevailed at the Antwerp auction of October 25, and prices were about 2 per cent. above those of the September sale. Nearly the whole quantity offered was disposed of—470 tons out of 510.

The next large sale will take place on November 22, when 529 tons will be offered for sale. The most important lots, with brokers' estimations, are:

33 tons Aruwimi.....	francs 9.00
34 " Uelé strips.....	9.20
17 " Maringa.....	5.40
15 " Aruwimi-Equateur.....	12.40
16 " Mongalla strips.....	10.20
30 " Upper Congo—Yakoma.....	11.60
23 " Batouri.....	10.50
34 " Sangha.....	10.00
20 " Congo M'Poko.....	11.50

C. SCHMID & CO. SUCCESEURS

Antwerp, November 17, 1905.

[CABLE advices received at New York indicate a considerable advance on the above estimations—in the case of the better grades as much as 4 @ 5 per cent.]

As indicating the proportion in which the various rubber grades figure in the Antwerp market, the following classification has been made, of the 113 lots catalogued for offer at the sale of November 22:

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots, in cents per pound—show few changes since our last report. Shoes are slightly lower and bicycle tire scrap higher:

Old Rubber Boots and Shoes—Domestic.....	8½ @ 8¼
Do —Foreign.....	7½ @ 7¼
Pneumatic Bicycle Tires.....	6½ @ 6¼
Solid Rubber Wagon and Carriage Tires.....	8½ @ 8¼
White Trimmed Rubber.....	9½ @ 9¼
Heavy Black Rubber.....	5½ @ 5
Air Brake Hose.....	3¼ @ 3½
Fire and Large Hose.....	3 @ 3¼
Garden Hose.....	2½ @ 2¼
Matting.....	1¼ @ 1½

Kilograms.		Kilograms.	
Congo.....	5,205	Upper Congo Batouri....	23,260
Congo Kouango.....	3,801	Loango.....	578
Congo Kasai (red).....	50,867	Guinea niggers.....	3,702
Congo Kasai (black).....	10,122	Guinea twists.....	475
Congo Djuma.....	20,766	Ivory Coast.....	1,860
Congo Alima.....	3,044	Congo Français.....	3,040
Congo Sangha.....	41,658	Gabon.....	1,500
Congo Wamba.....	38,002	Congo M'Poko.....	20,300
Lower Congo.....	906	Ogooue N'Gounie.....	2,390
Upper Congo.....	58,389	Madagascar East Coast...	6,300
Upper Congo Lopori.....	502	Madagascar Majunga...	450
Upper Congo Lopori I....	1,154	Madagascar Majunga II..	3,000
Upper Congo Lopori II..	7,725	Madagascar Majunga III.	1,900
Upper Congo Maringa....	17,166	East African.....	2,500
Upper Congo Isangl.....	289	Tonkin.....	345
Upper Congo Uelé.....	24,344	Ceylon.....	738
Upper Congo Aruwimi....	70,148	Pará hard cure.....	367
Up. Congo Lake Leopold II	18,116	Brazil (Jéque).....	7,337
Upper Congo Ruki.....	1,000	Bahia Mangabeira.....	26
Upper Congo Monboyo....	5,470	Total.....	303,516
Upper Congo Lomami....	11,668		
Upper Congo Mongalla..	25,409		

ANTWERP RUBBER STATISTICS FOR OCTOBER.

DETAILS.	1905.	1904.	1905.	1904.	1903.
Stocks, Sept. 30... kilos	566,735	804,482	421,858	456,711	806,143
Arrivals in October.....	555,920	363,490	944,274	340,598	234,635
Congo sorts.....	391,112	293,908	813,240	306,228	191,178
Other sorts.....	164,808	69,582	81,034	34,370	43,457
Aggregating.....	1,122,655	1,167,972	1,366,132	797,309	1,130,778
Sales in October.....	568,172	457,112	489,495	447,171	864,673
Stocks, Oct. 31...	554,483	710,860	876,637	350,138	266,105
Arrivals since Jan. 1.	4,615,168	4,845,311	4,726,430	4,369,518	4,960,761
Congo sorts.....	3,543,296	3,995,454	4,777,003	4,031,612	4,574,034
Other sorts.....	1,071,872	849,857	449,427	337,886	386,727
Sales since Jan. 1...	4,602,046	4,745,351	4,507,898	4,434,089	5,308,605

RUBBER ARRIVALS AT ANTWERP.

1 OCTOBER 31.—By the *Leopoldville*, from the Congo:

Bunge & Co.....	(Société Générale Africaine) kilos	90,000
Do.....	(Chemins de fer Grand Lacs)	21,000
Do.....	(Société A B I R)	5,000
Société Coloniale Anversoise.....		30,000
Do.....	(Süd Kamerun)	2,000
Do.....	(Belge du Haut Congo)	3,000
Do.....	(Cie. de Lomami)	7,000
L. & W. Van de Velde.....	(Cie. du Kasai)	11,000
Do.....		59,000
M. S. Cois.....	(Alima)	5,000
Comptoir des Produits Coloniaux (Ekela Kadei Sangha)		3,000
Charles Dethier.....	(Société La "M'Poko")	28,000
Cie. Commerciale des Colonies....	(La Haut Sangha)	8,000
		30,000 302,000

Bordeaux.

PRICES [FRANCS PER KILO] NOVEMBER 10.

Conakry niggers.....	11.15 @ 11.55	Lahou cakes.....	8. @ 8.25
Soudan niggers.....	10.50 @ 10.60	Bassam lumps.....	6. @ 6.20
Soudan twists.....	9.50 @ 10.	Bassam niggers....	8.50 @ 9.
Lahou twists.....	9.40 @ 9.50	Mexican.....	9.25 @ 9.75
Casamance A.....	8. @ 8.10	Colombian scrap....	8.50 @ 9.
Casamance A. M.....	7. @ 7.30	Maniçoba.....	8.80 @ 9.50

R. HENRY.

PARITY TABLE OF RUBBER PRICES.

PER POUND.			PER KILO.			PER POUND.			PER KILO.		
CENTS.	S.	D.	FRANCS.	MARKS.		CENTS.	S.	D.	FRANCS.	MARKS.	
65	2	81½	7.42	6.02		100	4	1¾	11.43	9.26	
70	2	10½	8.00	6.48		105	4	3¾	12.00	9.72	
75	3	1	8.57	6.95		110	4	6¼	12.51	10.19	
80	3	3½	9.14	7.41		115	4	8¾	13.14	10.65	
85	3	5½	9.70	7.87		120	4	11¼	13.70	11.12	
90	3	8¾	10.29	8.33		125	5	1¾	14.28	11.58	
95	3	11	10.84	8.80		130	5	4¾	14.85	12.04	

London.

EDWARD TILL & Co. report stocks [November 1]:

	1905.	1904.	1903.
LONDON { Pará sorts..... tons — — —			
Borneo.....	43	30	20
Assam and Rangoon.....	50	4	4
Penang.....	345	—	—
Other sorts.....	197	498	199
Total.....	635	532	223
LIVERPOOL { Pará.....	311	111	435
Caucho.....	59	140	51
Other sorts.....	367	524	476
Total, United Kingdom.....	1372	1307	1185
Total, October 1.....	1489	1666	866
Total, September 1.....	1694	1508	1564

PRICES PAID DURING OCTOBER.

	1905.	1904.	1903.
Pará fine, hard..	5/ 2½ @ 5/ 2½ 4/ 9½ @ 4/ 11½ 4/ 2½ @ 4/ 8		
Do soft.....	5/ 2 @ 5/ 5½ 4/ 8½ @ 4/ 10½ 4/ 0½ @ 4/ 7½		
Negroheads, scrappy..	3/ @ 3/ 10½ 3/ 8½ @ 3/ 9½ 3/ 5 @ 3/ 8½		
Do Cameté.....	2/ 11½ @ 3/ 1 2/ 8½ @ 2/ 9½ 2/ 5½ @ 2/ 10½		
Bolivian.....	5/ 2½ @ 5/ 5½ 4/ 10 @ 4/ 11		No sales
Caucho, ball.....	3/ 8½ @ 3/ 9½ 3/ 3 @ 3/ 5 3/ 5 @ 3/ 7½		
Do slab.....	3/ 1½ @ 3/ 2 2/ 9½ @ 2/ 10½ 2/ 9 @ 2/ 10½		
Do tails.....	3/ 3½ 2/ 9 @ 3/		No sales

Liverpool.

EDMUND SCHLÜTER & Co. report [October 31]:

Pará Rubber.—The market has been moderately active during the month, without much pressure to sell, but at gradually lower prices following the large receipts at Manáos and Pará. The increase of about 20 per cent. in the supplies during the first four months of the season is in excess of actual requirements, and if continued in even smaller proportions will tend to bring about a further decline.

WORLD'S VISIBLE SUPPLY OF PARÁS, OCTOBER 31.

	1905.	1904.	1903.	1902.	1901.
Tons.....	2970	2207	2457	3049	2987
Prices, hard fine.....	5/ 2½	5/-	4/ 2½	3/ 3½	3/ 6½

LIVERPOOL STOCKS OF AFRICAN RUBBER, OCTOBER 31.

	1905	1904	1903	1902	1901
1905.....	246	547	1899	547	
1904.....	401	673	1898	594	
1903.....	235	789	1897	337	

Rubber Receipts at Manaos.

DURING October and four months of the crop season for three years [courtesy of Messrs. Scholz & Co.]:

FROM—	1905.	1904.	1903.	JULY-OCTOBER.	1905.	1904.	1903.
Rio Purús—Acre..... tons	706	288	215	1873	1197	1101	
Rio Madeira.....	152	361	254	938	1035	1009	
Rio Juruá.....	301	190	158	617	405	414	
Rio Javary—Iquitos.....	443	575	581	1007	856	766	
Rio Solimões.....	120	72	99	330	114	183	
Rio Negro.....	6	15	2	12	18	17	
Total.....	1728	1501	1309	4777	3623	3490	
Caucho.....	129	116	87	527	334	428	
Total.....	1857	1617	1396	5304	3957	3918	

Para.

KANTHACK & Co. report [November 11]:

The late dullness prevailing at the consuming centers was to some extent reflected in the attitude of this market by want of animation, but although business was not active, its volume was quite satisfactory, comprising nearly all arrivals. Values which on various occasions threatened to give way were thereby kept fairly firm and have recently improved in consequence of better news from the home markets.

REFERRING to the loss of 310 tons of rubber by the sinking of the steamer *Cyril* on the Amazon [see THE INDIA RUBBER WORLD, November 1, 1905—page 45], Messrs. Booth & Co. advise us: "We are advised from Liverpool, under date of November 1, that they have succeeded in salvaging 254 cases of *Cyril's* rubber and also loose rubber equal

to about 30 cases in volume."—New York Commercial Co. report: "We received a cable from our Pará house on the 8th instant advising that of the *Cyril* lost rubber there were 100 tons of Rubber recovered—that is, fine, medium, and coarse—and 16 tons of Caucho, and these 116 tons were being forwarded to Europe. This leaves a shortage of 94 tons, which will probably be recovered later."

Ceylon Exports (Plantation Rubber).

DETAILS—BY WEEKS.

	POUNDS.	POUNDS.
January 1 to Aug. 21.....	69,047	Week ending Oct. 9..... 4,728
Week ending Aug 28.....	3,789	Week ending Oct. 16..... 10,403
Week ending Sept. 4.....	1,752	Week ending Oct. 23..... 2,830
Week ending Sept. 11.....	4,321	
Week ending Sept. 18.....	5,499	Total to Oct. 23..... 107,056
Week ending Sept. 25.....	2,602	Same period, 1904..... 52,612
Week ending Oct. 2.....	2,085	Same period, 1903..... 32,237

DESTINATION.

	POUNDS.	POUNDS.
Great Britain.....	77,625	United States..... 6,504
Germany.....	16,034	Australia..... 1,152
Belgium.....	5,595	Holland..... 125

Gutta-Percha.

THE latest report by the German consul at Singapore reports the movement of Gutta-percha in that market as follows, from which it may be inferred that the volume of the commodity increased very considerably while in store there [1 pikul = 133½ pounds]:

	1903	1904
Imports..... pikuls	35,695	12,666.9
Exports.....	25,661	27,373.9
Excess of Exports.....	9,966	14,707.
Value of Imports..... [in Straits Dollars]		\$1,699,640
Value of Exports.....		3,003,022
Excess Value Exports.....		\$1,303,382

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

November 3.—By the steamer *Justin*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	176,400	23,700	84,000	11,700=	295,800
Poel & Arnold.....	131,800	25,500	121,600	600=	279,500
A. T. Morse & Co.....	95,200	14,600	73,400	.. =	183,200
Neale & Co.....	.....	.....	66,300	..... =	66,300
General Rubber Co.....	31,000	4,400	13,300	..... =	48,700
Hagemeyer & Brunn.....	18,500	1,400	7,100	..... =	27,000
Constantine P. San Tos..	16,900	1,200	3,900	..... =	22,000
Lionel Hagenaers & Co..	8,000	.....	5,400	..... =	13,400
Edmund Reeks & Co....	5,800	300	1,900	..... =	8,000
Total.....	483,600	71,100	376,900	12,300=	943,900

November 15.—By the steamer *Cearense*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	226,400	31,400	101,600	1,600=	361,000
Poel & Arnold.....	205,600	51,900	95,700	1,400=	354,600
A. T. Morse & Co.....	85,400	6,300	40,800	10,500=	143,000
General Rubber Co.....	36,500	3,600	47,700	300=	88,100
Edmund Reeks & Co....	44,600	2,000	23,100	..... =	69,700
Neale & Co.....	.....	.....	32,200	..... =	32,200
Lionel Hagenaers & Co..	23,700	.....	2,200	..... =	25,900
Hagemeyer & Brunn....	.....	.....	4,800	..... =	4,800
Total.....	622,200	95,200	348,100	13,800=	1,079,300

November 24.—By the steamer *Grangense*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	Total.
Poel & Arnold.....	139,900	33,100	43,600	2,400=	219,000
New York Commercial Co.	103,600	13,500	50,400	3,600=	171,100
A. T. Morse & Co.....	100,200	24,800	25,800	800=	151,600
General Rubber Co.....	28,300	7,500	45,200	..... =	81,000
Neale & Co.....	.....	.....	65,700	..... =	65,700
Hagemeyer & Brunn.....	15,600	1,900	39,500	..... =	57,000
Constantine P. San Tos..	14,200	5,000	6,700	300=	26,200
Edmund Reeks & Co....	15,700	3,600	1,700	..... =	21,000
Lionel Hagenaers & Co..	6,700	.....	1,200	..... =	7,900
Total.....	424,200	89,400	279,800	7,100=	800,500

[NOTE.—The steamer *Basil*, from Pará, is due at New York, December 4, with 440 tons Rubber.]

PARA RUBBER VIA EUROPE.

		POUNDS.
OCT. 30.—By the <i>Bowie</i> =Liverpool:		
Poel & Arnold (Cauchó).....	70,000	
NOV. 13.—By the <i>Maracas</i> =Ciudad. Bolívar:		
Thebaud Brothers (Fine).....	2,000	
Thebaud Brothers (Coarse).....	2,000	4,000
NOV. 17.—By the <i>Havana</i> =Mollendo:		
Boston & Bolivia Co. (Fine).....	2,000	
Boston & Bolivia Co. (Coarse).....	1,500	
A. D. Hitch & Co. (Fine).....	1,500	
A. D. Hitch & Co. (Coarse).....	500	5,500
NOV. 20.—By the <i>Caronia</i> =Liverpool:		
Poel & Arnold (Coarse).....	70,000	
NOV. 22.—By the <i>Georgia</i> =Liverpool:		
Poel & Arnold (Coarse).....	7,000	

OTHER ARRIVALS AT NEW YORK.

CENTRALS.

		POUNDS.
OCT. 25.—By the <i>Sarnia</i> =Colombia:		
G. Amsinck & Co.....	5,500	
Andreas & Co.....	2,000	
Schulte & Giescher.....	1,500	
American Trading Co.....	500	
Isaac Brandon & Bros.....	500	
Roldan & Van Sickle.....	500	10,500
OCT. 25.—By the <i>Excelstor</i> =New Orleans:		
Eggers & Heinlein.....	3,500	
OCT. 28.—By the <i>Finance</i> =Colon:		
Hirzel, Feltman & Co.....	19,000	
G. Amsinck & Co.....	4,500	
Lawrence Johnson & Co.....	3,500	
Dumarest Bros. & Co.....	3,500	
A. Santos & Co.....	2,500	
Roldan & Van Sickle.....	2,500	
Isaac Brandon & Bros.....	1,400	
Mecke & Co.....	600	
Mann & Emdon.....	700	38,700
OCT. 28.—By the <i>El Norte</i> =Galveston:		
Continental Mexican Co.....	16,300	
OCT. 28.—By the <i>Segurana</i> =Mexico:		
H. Marquardt & Co.....	1,500	
E. Steiger & Co.....	1,000	
W. Loalza & Co.....	700	3,200
NOV. 2.—By the <i>Graf Waldersee</i> =Hamburg:		
General Rubber Co.....	20,000	
NOV. 2.—By the <i>Grenada</i> =Ciudad Bolívar:		
Thebaud Brothers.....	33,000	
Frith, Sands & Co.....	30,000	
Middleton & Co.....	2,500	65,500
NOV. 2.—By the <i>Alleghany</i> =Colombia:		
Gould & Co.....	2,500	
A. M. Capens Sons.....	2,000	
Isaac Brandon & Bros.....	1,500	
G. Amsinck & Co.....	1,500	
Banco de Exportasos.....	800	
American Trading Co.....	1,000	
Henry Sons & Co.....	1,000	
D. A. De Lima & Co.....	700	
Lauman & Kemp.....	600	
Pedro A. Lopez.....	600	12,200
NOV. 3.—By the <i>Rio Grande</i> =Mobile:		
A. T. Morse & Co.....	6,500	
NOV. 4.—By the <i>Orizaba</i> =Tampico:		
European Account.....	56,000	
NOV. 4.—By the <i>Fuente</i> =Mexico:		
Harburger & Stack.....	2,300	
H. Marquardt & Co.....	1,500	
Frederick Probst & Co.....	1,000	
E. Steiger & Co.....	700	
American Trading Co.....	500	7,000
NOV. 6.—By the <i>Advance</i> =Colon:		
Hirzel, Feltman & Co.....	16,500	
Pina, Nephews & Co.....	1,300	
Lawrence Johnson & Co.....	500	18,300
NOV. 6.—By the <i>Canning</i> =Bahia:		
J. H. Rossbach & Bros.....	25,000	
American Commercial Co.....	6,500	
Hirsch & Kaiser.....	5,000	
George A. Alden & Co.....	2,200	
Lawrence Johnson & Co.....	1,500	40,200
NOV. 9.—By the <i>Alamo</i> =Mobile:		
Manhattan Rubber Mfg. Co.....	2,000	
A. T. Morse & Co.....	1,500	3,500
NOV. 9.—By the <i>Carib II</i> =Truxillo:		
Eggers & Heinlein.....	15,000	
H. W. Peabody & Co.....	2,000	
G. Amsinck & Co.....	1,100	

CENTRALS—Continued.

Borthing & DeLeon.....	600	
Graham, Hinkley & Co.....	500	19,200
NOV. 9.—By the <i>Siberia</i> =Colombia:		
G. Amsinck & Co.....	1,000	
Roldan & Van Sickle.....	1,200	
Lindo Brothers.....	1,200	
A. D. Straus & Co.....	500	
Kunhardt & Co.....	500	
American Trading Co.....	600	5,000
NOV. 10.—By the <i>Esperanza</i> =Mexico:		
Harburger & Stack.....	2,500	
Strube & Ultz.....	1,500	
E. Steiger & Co.....	1,500	
Graham, Hinkley & Co.....	1,000	
Thebaud Brothers.....	700	7,200
NOV. 10.—By the <i>Mexico</i> =Colon:		
Lawrence Johnson & Co.....	9,200	
G. Amsinck & Co.....	5,000	
Hirzel, Feltman & Co.....	4,000	
E. B. Strout.....	3,800	
Roldan & Van Sickle.....	2,400	
Dumarest Bros. & Co.....	2,000	
American Trading Co.....	1,600	
J. A. Medina & Co.....	1,600	
Silva, Bussenius & Co.....	700	
A. Santos & Co.....	700	31,000
NOV. 14.—By the <i>Lampasas</i> =Mobile:		
G. Amsinck & Co.....	2,000	
A. T. Morse & Co.....	1,500	
E. B. Strout.....	500	4,000
NOV. 14.—By the <i>Altai</i> =Costa Rica:		
Isaac Brandon & Bros.....	2,000	
Commercial Cortez.....	2,000	
Roldan & Van Sickle.....	1,200	
A. D. Straus & Co.....	800	
Banco de Exportasos.....	500	6,500
NOV. 15.—By the <i>City of Washington</i> =Mexico:		
Harburger & Stack.....	1,500	
American Trading Co.....	500	
European Account.....	50,000	52,000
NOV. 16.—By the <i>Cameous</i> =Bahia:		
Hirsch & Kaiser.....	17,000	
American Commercial Co.....	6,000	23,000
NOV. 16.—By the <i>El Norte</i> =Galveston:		
Continental Mexican Co.....	18,500	
NOV. 17.—By the <i>Havana</i> =Colon:		
Hirzel, Feltman & Co.....	17,000	
W. R. Grace & Co.....	3,700	20,700
NOV. 18.—By the <i>Vigilancia</i> =Mexico:		
H. Marquardt & Co.....	2,200	
Thebaud Brothers.....	2,000	4,200
NOV. 20.—By the <i>El Rio</i> =Galveston:		
Continental Mexican Co.....	13,500	
NOV. 20.—By the <i>Tennyson</i> =Bahia:		
Hirsch & Kaiser.....	17,000	
American Commercial Co.....	3,500	
Lawrence Johnson & Co.....	3,500	24,000
NOV. 21.—By the <i>Rio Grande</i> =Mobile:		
G. Amsinck & Co.....	13,500	
Manhattan Rubber Mfg. Co.....	9,000	
A. T. Morse & Co.....	8,500	
A. N. Rotholz.....	8,000	39,000
NOV. 22.—By the <i>Sarnia</i> =Colombia:		
Daniel Javour Bros.....	2,700	
Banco de Exportasos.....	7,500	
Kunhardt & Co.....	1,100	
Mecke & Co.....	700	
Commercial Cortez.....	600	
G. Amsinck & Co.....	500	
Isaac Brandon & Bros.....	500	7,400

AFRICANS.

		POUNDS.
OCT. 24.—By the <i>Finland</i> =Antwerp:		
George A. Alden & Co.....	15,000	
OCT. 25.—By the <i>Caronia</i> =Liverpool:		
General Rubber Co.....	11,500	
A. W. Brunn.....	9,000	20,500
OCT. 25.—By the <i>Hyndam</i> =Rotterdam:		
Poel & Arnold.....	8,000	
OCT. 27.—By the <i>Pretoria</i> =Hamburg:		
Poel & Arnold.....	33,500	
General Rubber Co.....	19,000	
A. T. Morse & Co.....	7,000	
George A. Alden & Co.....	4,000	63,500
OCT. 28.—By the <i>Lucania</i> =Liverpool:		
A. T. Morse & Co.....	10,000	

AFRICANS—Continued.

OCT. 28.—By the <i>Peninsular</i> =Lisbon:		
General Rubber Co.....	77,500	
OCT. 28.—By the <i>Lorraine</i> =Havre:		
General Rubber Co.....	20,000	
A. T. Morse & Co.....	14,000	34,000
OCT. 28.—By the <i>Fricka</i> =Bordeaux:		
A. T. Morse & Co.....	17,600	
OCT. 30.—By the <i>Boric</i> =Liverpool:		
F. R. Muller & Co.....	22,000	
A. W. Brunn.....	1,500	23,500
OCT. 30.—By the <i>Gascoyne</i> =Havre:		
A. T. Morse & Co.....	15,000	
NOV. 2.—By the <i>Graf Waldersee</i> =Hamburg:		
A. T. Morse & Co.....	46,000	
George A. Alden & Co.....	11,000	
Poel & Arnold.....	4,000	61,000
NOV. 3.—By the <i>Cedric</i> =Liverpool:		
General Rubber Co.....	11,000	
George A. Alden & Co.....	11,000	
A. T. Morse & Co.....	7,000	
Earle Brothers.....	2,000	31,000
NOV. 6.—By the <i>Etruria</i> =Liverpool:		
George A. Alden & Co.....	20,000	
A. W. Brunn.....	1,500	21,500
NOV. 8.—By the <i>Kronland</i> =Antwerp:		
Poel & Arnold.....	50,000	
Joseph Cantor.....	38,000	
Robinson & Tallman.....	24,000	
A. T. Morse & Co.....	16,000	
General Rubber Co.....	2,500	130,500
NOV. 8.—By the <i>Molke</i> =Hamburg:		
Poel & Arnold.....	13,700	
A. T. Morse & Co.....	13,500	
Rubber Trading Co.....	7,000	34,000
NOV. 9.—By the <i>Victorian</i> =Liverpool:		
A. T. Morse & Co.....	11,000	
F. R. Muller & Co.....	10,000	21,000
NOV. 10.—By the <i>Battle</i> =Liverpool:		
Poel & Arnold.....	22,000	
A. W. Brunn.....	13,000	
A. T. Morse & Co.....	6,500	40,500
NOV. 11.—By the <i>Campania</i> =Liverpool:		
A. T. Morse & Co.....	25,000	
George A. Alden & Co.....	2,000	27,000
NOV. 13.—By the <i>Zeeland</i> =Antwerp:		
George A. Alden & Co.....	175,000	
Poel & Arnold.....	33,500	
Robinson & Tallman.....	27,500	
Rubber Trading Co.....	13,500	244,500
NOV. 14.—By the <i>Cecil</i> =Liverpool:		
General Rubber Co.....	20,000	
Poel & Arnold.....	6,000	
George A. Alden & Co.....	2,500	30,500
NOV. 14.—By the <i>Potsdam</i> =Rotterdam:		
A. T. Morse & Co.....	16,000	
NOV. 18.—By the <i>Batavia</i> =Hamburg:		
George A. Alden & Co.....	15,000	
NOV. 20.—By the <i>Caronia</i> =Liverpool:		
George A. Alden & Co.....	24,000	
A. T. Morse & Co.....	11,500	35,500
NOV. 22.—By the <i>Finland</i> =Antwerp:		
Poel & Arnold.....	22,500	
NOV. 22.—By the <i>Oceanic</i> =Liverpool:		
A. T. Morse & Co.....	11,500	
A. W. Brunn.....	5,000	16,500
EAST INDIAN.		
OCT. 25.—By the <i>Caronia</i> =Liverpool:		
Poel & Arnold.....	11,000	
OCT. 30.—By the <i>New York</i> =London:		
Poel & Arnold.....	13,000	
H. W. Peabody & Co.....	2,000	15,000
NOV. 3.—By the <i>Indrauwati</i> =Singapore:		
Winter & Smillie.....	17,000	
Heabler & Co.....	30,000	
A. T. Morse & Co.....	11,000	
Robert Brans & Co.....	11,500	60,500
NOV. 8.—By the <i>Shimosa</i> =Singapore:		
Pierre T. Batis.....	7,000	
F. R. Muller & Co.....	5,500	12,500

EAST INDIAN—Continued.

Nov. 8.—By the <i>Trifels</i> =Colombo:	
George A. Alden & Co	3,000
Nov. 8.—By the <i>Yeddo</i> =Singapore:	
Poel & Arnold	88,000
A. T. Morse & Co	17,000 108,000
Nov. 13.—By the <i>Minnetonka</i> =London:	
George A. Alden & Co	13,500
Poel & Arnold	2,500
A. T. Morse & Co	2,000 18,000

GUTTA-JELUTONG.

Oct. 24.—By the <i>Verona</i> =Singapore:	
Heabler & Co	100,000
Winter & Smillie	54,000 156,000
Nov. 2.—By the <i>Indrawadi</i> =Singapore:	
Robert T. Brans & Co	220,000
Heabler & Co	210,000
George A. Alden & Co	150,000 580,000
Nov. 2.—By the <i>Yeddo</i> =Singapore:	
Poel & Arnold	155,000
Pierre T. Betts	60,000 215,000
Nov. 8.—By the <i>Shimosa</i> =Singapore:	
F. R. Muller & Co	190,000
Pierre T. Betts	170,000 360,000

GUTTA-PERCHA AND BALATA.

POUNDS.	
Oct. 27.—By the <i>Pretoria</i> =Hamburg	
To Order	6,500
Nov. 2.—By the <i>Graf Waldersee</i> =Hamburg:	
To Order	10,000
Nov. 3.—By the <i>Indrawadi</i> =Singapore:	
Heabler & Co	25,000
Nov. 8.—By the <i>Shimosa</i> =Singapore:	
Winter & Smillie	11,500
Nov. 8.—By the <i>Batavia</i> =Hamburg:	
To Order	6,500
Heabler & Co	2,500 9,000

GUTTA-PERCHA AND BALATA—Continued.

BALATA.

Oct. 23.—By the <i>Lucania</i> =Liverpool:	
Henry A. Gould Co	5,500
Oct. 30.—By the <i>Minnehaha</i> =London:	
Earle Brothers	9,000
Nov. 4.—By the <i>Prins Willem</i> =Surinam:	
European Account	15,000
G. Amsinck & Co	7,000 22,000
Nov. 13.—By the <i>Minnetonka</i> =London:	
F. R. Muller & Co	5,500
A. W. Brunn	2,000 7,500
Nov. 13.—By the <i>Maraca</i> =Cuidad Bolivar:	
Middleton & Co	11,500
Thebaud Brothers	6,000
European Account	95,000 112,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—OCTOBER.

Imports:	POUNDS.	VALUE.
India-rubber	4,601,407	\$3,684,572
Gutta-percha	35,591	15,144
Gutta-jelutong (Pontianak) ..	1,714,039	60,498
Total	6,354,037	\$3,740,214

Exports:	POUNDS.	VALUE.
India-rubber	59,656	\$ 63,932
Reclaimed rubber	278,859	32,591
Rubber Scrap Imported	1,667,656	\$113,003

BOSTON ARRIVALS.

POUNDS.	
SEPT. 5.—By the <i>Lancastrian</i> =London:	
George A. Alden & Co.—East Indian ..	4,206
SEPT. 5.—By the <i>Republic</i> =Liverpool:	
Poel & Arnold—African	11,343

BOSTON ARRIVALS—Continued.

SEPT. 7.—By the <i>Roberts</i> =Calcutta:	
George A. Alden & Co.—East Indian ..	1,301
SEPT. 8.—By the <i>Bethania</i> =Hamburg:	
George A. Alden & Co.—East Indian ..	2,314
SEPT. 13.—By the <i>Bohemian</i> =Liverpool:	
To Order—East Indian	20
SEPT. 13.—By the <i>Cestrian</i> =Liverpool:	
George A. Alden & Co.—African	2,158
SEPT. 14.—By the <i>Cymric</i> =Liverpool:	
To Order—East Indian	620
SEPT. 16.—By the <i>Arabic</i> =Liverpool:	
J. E. Odell—African	8,816
SEPT. 19.—By the <i>Arabic</i> =Liverpool:	
To Order—East Indian	232
SEPT. 21.—By the <i>Canadian</i> =Liverpool:	
To Order—East Indian	280
SEPT. 21.—By the <i>Sylvania</i> =Liverpool:	
To Order—East Indian	291
SEPT. 21.—By the <i>Avernia</i> =Liverpool:	
To Order—East Indian	158
SEPT. 20.—By the <i>Kroonland</i> =Antwerp:	
George A. Alden & Co.—African	42,870
[Reported in New York arrivals September 11.]	
SEPT. 26.—By the <i>Devonian</i> =Liverpool:	
To Order—East Indian	294
SEPT. 27.—By the <i>Devonian</i> =Liverpool:	
George A. Alden & Co.—Central	22,872
SEPT. 30.—By the <i>Sylvania</i> =Liverpool:	
To Order—East Indian	179
Total	97,904

[Value, \$66,373.]

* [NOTE.—These items are understood to have been mainly samples of Ceylon or Straits plantation rubber.]

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.				GREAT BRITAIN.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1905	4,967,194	304,173	4,663,021	September, 1905	4,177,264	2,513,952	1,663,312
January-August	44,709,074	2,052,652	42,656,422	January-August	42,288,960	23,085,440	19,203,520
Nine months, 1905	49,676,268	2,356,825	47,319,443	Nine months, 1905	46,466,224	25,599,392	20,866,832
Nine months, 1904	44,553,345	2,586,325	41,967,020	Nine months, 1904	41,722,016	24,239,158	17,482,858
Nine months, 1903	42,898,398	2,583,197	40,315,201	Nine months, 1903	30,240,168	28,000,592	10,348,576
GERMANY.				ITALY.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1905	4,104,980	2,369,180	1,735,800	September, 1905	84,700	4,400	80,300
January-August	39,686,140	10,169,720	19,516,420	January-August	1,159,400	218,020	941,380
Nine months, 1905	33,791,120	12,538,900	21,252,220	Nine months, 1905	1,244,100	222,420	1,021,680
Nine months, 1904	26,602,840	7,302,900	19,299,940	Nine months, 1904	1,128,160	77,440	1,050,720
Nine months, 1903	25,848,020	8,873,040	16,974,980	Nine months, 1903	1,117,820	123,420	994,400
FRANCE.*				AUSTRIA-HUNGARY.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1905	1,003,360	1,402,060	[‡39,700]	September, 1905	287,100	440	286,660
January-August	18,173,540	10,788,580	7,384,960	January-August	1,988,580	21,340	1,967,240
Nine months, 1905	19,182,900	12,190,640	6,992,260	Nine months, 1905	2,275,680	21,780	2,253,900
Nine months, 1904	15,903,360	8,638,740	7,264,620	Nine months, 1904	2,095,940	16,280	2,079,660
Nine months, 1903	11,754,160	6,826,600	4,927,560	Nine months, 1903	2,137,080	20,460	2,116,620
BELGIUM.†							
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.				
September, 1905	1,187,674	1,236,272	[‡48,598]				
January-August	11,765,630	8,256,674	3,508,956				
Nine months, 1905	12,953,304	9,492,046	3,461,258				
Nine months, 1904	13,849,457	11,097,046	2,752,411				
Nine months, 1903	11,405,094	9,326,697	2,078,397				

NOTE.—German statistics include Gutta-percha, Balata, old (waste) rubber, and substitutes. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

* General Commerce. † Special Commerce. ‡ Net Export.

BUYERS' DIRECTORY OF THE RUBBER TRADE.

CLASSIFIED LIST OF MANUFACTURERS AND DEALERS IN INDIA-RUBBER GOODS AND RUBBER MANUFACTURERS' SUPPLIES.

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MECHANICAL RUBBER GOODS

Belting.
Diaphragms.
Gaskets.
Hose (Fire, Garden, Steam).
Mats and Matting.
Mould Work.
Packing.
Valves.
Washers.

Mechanical Rubber Goods—General.
 Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Bowers Rubber Co., San Francisco, Cal.
 Canadian Rubber Co. of Montreal.
 Chicago Rubber Wks., Chicago.
 Cincinnati Rubber Mfg. Co., Cincinnati.
 Cleveland Rubber Co., Cleveland, O.
 Combination Rubber Mfg. Co., Bloomfield, N. J.
 Continental Caoutchouc & Gutta Percha Co., Hanover, Germany.
 Dunlop Tire & Rubber Goods Co., Toronto.
 Empire Rubber Mfg. Co., Trenton, N. J.
 Eureka Fire Hose Co., New York.
 Eureka Rubber Mfg. Co. of Trenton.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Gutta Percha & Rubber Mfg. Co., Toronto.
 Home Rubber Co., Trenton, N. J.
 Lake Shore Rubber Co., Erie, Pa.
 Liverpool Rubber Mfg. Co., Liverpool, Eng.
 Manhattan Rubber Mfg. Co., New York.
 Mechanical Rubber Co., New York.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 New York Rubber Co., New York.
 Home Rubber Co., Trenton, N. J.
 Manhattan Rubber Mfg. Co., New York.

Mechanical Goods—General—Continued.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 New York Belting & Packing Co., N. Y.
 North British Rubber Co., Ltd., Edinburgh.
 Peerless Rubber Mfg. Co., New York.
 Pirelli & Co., Milan, Italy.
 Republic Rubber Co., Youngstown, Ohio.
 Revere Rubber Co., Boston.
 Springfield Tire & Rubber Co., Springfield, Ohio.
 Standard Rubber Co., Trenton, N. J.
 Jos. Stokes Rubber Co., Trenton, N. J.
 Trenton Rubber Mfg. Co., Trenton, N. J.
 Voorhees Rubber Mfg. Co., Jersey City.

Air Brake Hose.
 Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 Combination Rubber Mfg. Co., Bloomfield, N. J.
 Eureka Rubber Mfg. Co. of Trenton.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 N. J. Car Spring & Rubber Co., Jersey City.

Belting (Canvas).
 Boston Belting Co., Boston.
 Canadian Rubber Co. of Montreal.
 Combination Rubber Mfg. Co., Bloomfield, N. J.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Manhattan Rubber Mfg. Co., New York.
 Peerless Rubber Mfg. Co., New York.
 Revere Rubber Co., Boston-New York.

Billiard Cushions.
 Boston Belting Co., Boston.
 Canadian Rubber Co. of Montreal.
 Combination Rubber Mfg. Co., Bloomfield, N. J.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Manhattan Rubber Mfg. Co., New York.
 New York Belting & Packing Co., Ltd.
 New York Rubber Co., New York.
 Revere Rubber Co., Boston-New York.

Blankets—Printers'.

Peerless Rubber Mfg. Co., New York.
 Boston Belting Co., Boston.
 Canadian Rubber Co. of Montreal.
 Peru-Pará Rubber Co.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Hodgman Rubber Co., New York.
 Gustave Kush, New York.
 Liverpool Rubber Co., Liverpool, Eng.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Brushes.
 O. J. Bailey & Co., Boston.

Buffers.
 Boston Belting Co., Boston-New York.
 Canadian Rubber Co. of Montreal.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Liverpool Rubber Co., Ltd., Liverpool.

Card Cloths.
 Canadian Rubber Co. of Montreal.
 Mechanical Fabric Co., Providence, R. I.

Carriage Mats.
 Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
 Peerless Rubber Mfg. Co., New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Cord (Pure Rubber).
 Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 Cleveland Rubber Co., Cleveland, O.
 Davol Rubber Co., Providence, R. I.
 Empire Rubber Mfg. Co., Trenton, N. J.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.

Cord (Pure Rubber)—Continued.

Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.
 Voorhees Rubber Mfg. Co., Jersey City.

Deckle Straps.
 Boston Belting Co., Boston.
 B. F. Goodrich Co., Akron, O.
 Liverpool Rubber Co., Liverpool, Eng.
 Mechanical Rubber Co., Chicago.
 New York Belting & Packing Co., N. Y.
 Republic Rubber Co., Youngstown, O.
 Revere Rubber Co., Boston-New York.

Door Springs.
 Hodgman Rubber Co., New York.

Dredging Sleeves.
 Boston Belting Co., Boston-New York.
 Boston Woven Hose & Rubber Co.
 B. F. Goodrich Co., Akron, O.
 Gutta Percha & Rubber Mfg. Co., N. Y.
 Home Rubber Co., Trenton, N. J.
 N. J. Car Spring & Rubber Co., Jersey City.
 Republic Rubber Co., Youngstown, O.

Force Cups.
 Hodgman Rubber Co., New York.

Fruit Jar Rings.
 Boston Woven Hose & Rubber Co.
 Canadian Rubber Co. of Montreal.
 Cincinnati Rubber Mfg. Co., Cincinnati, O.
 Cleveland Rubber Co., Cleveland, O.
 B. F. Goodrich Co., Akron, O.
 Empire Rubber Mfg. Co., Trenton, N. J.
 Eureka Rubber Mfg. Co. of Trenton.
 Manhattan Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, Ohio.
 New York Belting & Packing Co., N. Y.

Fuller Balls.
 B. F. Goodrich Co., Akron, O.
 N. J. Car Spring & Rubber Co., Jersey City.
 Peerless Rubber Mfg. Co., New York.
 Republic Rubber Co., Youngstown, O.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Gage Glass Washers.

Boston Belting Co., Boston, Mass.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Liverpool Rubber Co., Liverpool, Eng.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Revere Rubber Co., Boston, Mass.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Gas-Bags (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Liverpool Rubber Co., Liverpool, Eng.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Tyer Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Gasket Tubing.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Revere Rubber Co., Boston.

Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati, O.

Hat Bags.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mattison Rubber Co., Chicago.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Horse Shoe Pads.

Canadian Rubber Co. of Montreal.
Heme Rubber Co., Trenton, N. J.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Armored.

Hose—Wire Wound.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
N. J. Car Spring & Rubber Co., Jersey City.

Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Couplings and Fittings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Hose Linings.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston.

Hose—Protected.

Boston Belting Co., Boston-New York.
Gutta Percha & Rubber Mfg. Co., N. Y.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

COTTON AND LINEN.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Gutta Percha & Rubber Mfg. Co., N. Y.

COTTON AND LINEN.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Eureka Rubber Mfg. Co., New York.
Fabric Fire Hose Co., New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha and Rubber Mfg. Co. of Toronto.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

"Jenkins '95" Packing.

Jenkins Bros., New York.

Lawn Sprinklers.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston-New York.

Mould Work.

[See Mechanical Rubber Goods.]

Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
Mattison Rubber Co., New York.
Mitzel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

"Nubian" Packing.

Voorhees Rubber Mfg. Co., Jersey City.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Peerless Rubber Mfg. Co., New York.
Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Republic Rubber Co., Youngstown, O.

Pump Valves.

[See Mechanical Rubber Goods.]

Jenkins Bros., New York.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Sewing Machine Rubbers.

B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Hardman Rubber Co., Belleville, N. J.
Liverpool Rubber Co., Liverpool, Eng.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Home Rubber Co., Trenton, N. J.
Liverpool Rubber Co., Liverpool, Eng.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Canadian Rubber Co. of Montreal, Ltd.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Voorhees Rubber Mfg. Co., Jersey City.

Tires.

AUTOMOBILE, BICYCLE, AND CARRIAGE.

Canadian Rubber Co. of Montreal, Ltd.
Continental Caoutchouc & Guttapercha Co., Hanover.
Dunlop Tire & Rubber Goods Co., Toronto.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., Toronto.
Kokomo Rubber Co., Kokomo, Ind.
Lake Shore Rubber Co., Erie, Pa.
Liverpool Rubber Co., Liverpool, Eng.
North British Rubber Co., Ltd., Edinburgh.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.

Tires.—Continued.

AUTOMOBILE AND CARRIAGE.

Boston Belting Co., Boston-New York.
Eureka Rubber Mfg. Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Tubing.

[See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York.
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

Jenkins Bros., New York-Chicago.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Daval Rubber Co., Providence, R. I.
Est. of Jos. Bachrach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York.
Mitzel Rubber Co., Akron, O.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Balls, Dolls and Toys.

Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co.
B. F. Goodrich Co., Akron, O.
New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Elastic Bands.

Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Mattson Rubber Co., New York.

Finger Cots.

Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Hardman Rubber Co., Belleville, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Pure Gum Specialty Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.
B. F. Goodrich Co., Akron, O.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass.

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York.
New York Belting & Packing Co., N. Y.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Tyer Rubber Co., Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

**MACKINTOSHED
AND SURFACE
GOODS****Air Goods (Rubber).**

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.

Barbers' Bibs.

Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., Toronto.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Hodgman Rubber Co., New York.
Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

**RUBBER
FOOTWEAR****Boots and Shoes.**

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal.
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Liverpool Rubber Co., Liverpool, Eng.
Lycorning Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Gutta-percha Co., Hanover.
Grieb Rubber Co., Trenton, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Springfield Tire & Rubber Co., Springfield, Ohio.

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Granby Rubber Co., Granby, Quebec.
La Crosse Rubber Mills Co., La Crosse, Wis.
Liverpool Rubber Co., Liverpool, Eng.
National India Rubber Co., Providence.
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

**SPORTING
GOODS****Foot Balls.**

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.

Submarine Outfits.

Hodgman Rubber Co., New York.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

**DENTAL AND
STAMP RUBBER****Dental Gum.**

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL**Electrical Supplies.**

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
Home Rubber Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J.

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

MISCELLANEOUS**Architect and Engineer.**

Herbert S. Kimball, Boston.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical Analyses.

Durand Woodman, Ph.D., New York.
H. L. Terry, Manchester, England.

Chemists.

Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph.D., New York.

Laboratory—Tests, Analyses.

G. E. Heyl-Dia, New York.

Rubber Planting.

Hidalgo Plantation and Commercial Co., San Francisco.
Mexican Mutual Rubber Co., Chicago.

Rubber Tree Seeds.

J. P. William & Bros., Haneratoda, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY

Acid Tanks.
Birmingham Iron Foundry, Derby, Ct.

Band Cutting Machine.
A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Belt Folding Machines.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Slitters.
Cloth Dryers.
Gearing.
Shafting.
Wrapping Machines.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Stretchers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Hoggson & Pettis Mfg. Co., New Haven.

Blowers.
B. F. Sturtevant Co., Hyde Park, Mass.
L. J. Wing Mfg. Co., New York.

Boilers.
William B. Thropp, Trenton, N. J.

Braidlers.
New England Butt Co., Providence, R. I.

Brands and Labels.
Horace E. Fine, Trenton, N. J.

Buckles.
The Weld Mfg. Co., Boston.

Cabling Machinery.
Alton Machine Co., New York.

Calenders.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Castings.
A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Chucks (Lathes).
Hoggson & Pettis Mfg. Co., New Haven.

Churns.
American Tool & Machine Co., Boston.

Clutches.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Crackers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Devulcanizers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Edred W. Clark, Hartford, Ct.
William B. Thropp, Trenton, N. J.

Dies.
Hoggson & Pettis Mfg. Co., New Haven.
Holmes Bros., Chicago, Ill.

Doubling Machines.
American Tool & Machine Co., Boston.

Draft, Mechanical.
B. F. Sturtevant Co., Hyde Park, Mass.

Drying Apparatus.
American Process Co., New York.
B. F. Sturtevant Co., Hyde Park, Mass.

Drying Machines.
Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Dynamoes.
B. F. Sturtevant Co., Hyde Park, Mass.

Embossing Calenders.
Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.
Alton Machine Co., New York.
B. F. Sturtevant Co., Hyde Park, Mass.
William B. Thropp, Trenton, N. J.

Engraving Roll.
Hoggson & Pettis Mfg. Co., New Haven.

Factory Construction.
Herbert S. Kimball, Boston.

Exhaust Fans and Heads.
Fans (Electric).
Fans (Exhaust and Ventilating).
Forges.
Fuel Economizers.
Gas Exhausters.
Generating Sets.
B. F. Sturtevant Co., Hyde Park, Mass.

Grinders and Mixers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William B. Thropp, Trenton, N. J.

Hangers.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Heating and Ventilating Apparatus.
B. F. Sturtevant Co., Hyde Park, Mass.

Hose Machines.
A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Hydraulic Machinery.
Insulating Machinery.
Iron Castings.
Alton Machine Co., New York.

Lasts (Rubber Shoe).
Middlesex Last Co., Boston.

Lathes—Hard Rubber.
A. Adamson, Akron, Ohio.

Lathes—Jar Ring.
A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
William B. Thropp, Trenton, N. J.

Machinists' Tools.
Hoggson & Pettis Mfg. Co., New Haven.

Motors, Electric.
B. F. Sturtevant Co., Hyde Park, Mass.

Moulds.
A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Hoggson & Pettis Mfg. Co., New Haven.
Holmes Bros., Chicago, Ill.

Pillow Blocks.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Presses (for Rubber Work.)
A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse, N. Y.
Edred W. Clark, Hartford, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William B. Thropp, Trenton, N. J.

Pumps.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Racks for Boot and Shoe Cars.
Hoggson & Pettis Mfg. Co., New Haven.

Reducing Valves.
Mason Regulator Co., Boston.

Rollers (Hand).
Hoggson & Pettis Mfg. Co., New Haven.
Holmes Bros., Chicago, Ill.

Rubber Covering Machines.
Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Separators.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Separators for Reclaimed Rubber.
American Process Co., New York.

Special Rubber Machinery.
Alton Machine Co., New York.
Wellman Sole Cutting Machine Co., Medford, Mass.

Spreaders.
Alton Machine Co., New York.
American Tool & Machine Co., Boston.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Steam Hot Blast Apparatus.
B. F. Sturtevant Co., Hyde Park, Mass.

Steam Traps and Specialties.
Jenkins Bros., New York.
Mason Regulator Co., Boston.
Oswood Sayen, Philadelphia, Pa.
B. F. Sturtevant Co., Hyde Park, Mass.

Steel Stamps.
Hoggson & Pettis Mfg. Co., New Haven.

Stitchers (Hand).
Hoggson & Pettis Mfg. Co., New Haven.
Holmes Bros., Chicago, Ill.

Strip Covering Machines.
Strip Cutters.
Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Tubing Machines.
A. Adamson, Akron, O.
Alton Machine Co., New York.
Edred W. Clark, Hartford, Ct.
Holmes Bros., Chicago, Ill.
John Royle & Sons, Paterson, N. J.

Vacuum Drying Chambers.
Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.

Varnishing Machines.
Birmingham Iron Foundry, Derby, Ct.

Ventilating Apparatus.
B. F. Sturtevant Co., Hyde Park, Mass.

Vulcanizers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William B. Thropp, Trenton, N. J.

Washers.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William B. Thropp, Trenton, N. J.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Insulating Machines.
Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Wire Rope Machinery.
Alton Machine Co., New York.

SECOND-HAND MACHINERY.

W. C. Coleman Co., Rochelle Park, N. J.
Philip McGrory, Trenton, N. J.

FACTORY SUPPLIES

Acid (Carbolic).
Barrett Mfg. Co., Philadelphia.

Antimony, Sulphurets of.
GOLDEN.
Acien-Ges. Georg. Egestorf's Salzwerke, Linden, Germany.
Atlas Chemical Co., Newtonville, Mass.
GOLDEN AND GRIMSON.
Joseph Cantor, New York.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Type & King, London, England.

Balata.
George A. Alden & Co., Boston.

Benzol.
Barrett Mfg. Co., Philadelphia.
Samuel Cabot, Boston.

Black Hypo.
Joseph Cantor, New York.
William H. Scheel, New York.
Type & King, London, England.

Boxes (Wood).
Henry H. Shelp & Co., Philadelphia.

Brass Fittings.
A. Schrader's Son, Inc., New York.

Carbon Bisulphide.
George W. Speaight, New York.

Caustic Soda.
Acker Process Co., Niagara Falls, N. Y.

Chemicals.
Acker Process Co., Niagara Falls, N. Y.
Empire Palm Oil Co., Boston.
George W. Speaight, New York.

Colors.
Joseph Cantor, New York.
William H. Scheel, New York.
Toch Bros., New York.
Type & King, London, England.

Crude Rubber.
George A. Alden & Co., Boston.
A. W. Brunn, New York.
Hagemeyer & Brunn, New York.
Hirsch & Kaiser, Inc., New York.
F. R. Müller & Co., New York.
Neale & Co., New York.
Rubber Trading Co., New York-Boston.

Drills.
Duck (Cotton).
J. H. Lane & Co., New York.

Gilsonite.
William H. Scheel, New York.

Graphite.
United States Graphite Co., Philadelphia.

Graphite Grease.
Jos. Dixon Crucible Co., Jersey City.

Guayule Rubber.
Ed. Maurer, New York.

Gutta-Percha.
George A. Alden & Co., Boston.
Rubber Trading Co., New York-Boston.

Hose Bands, Straps & Menders.
Boston Woven Hose & Rubber Co.
William Yerdon, Fort Plain, N. Y.

Hose Pipes, Nozzles & Couplings.
Boston Woven Hose & Rubber Co.
Eureka Fire Hose Co., New York.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

Hydro-Carbon Products.
Geo. A. Alden & Co., Boston.
William H. Scheel, New York.

Infusorial Earth.
Stamford (Conn.) Rubber Supply Co.

Lamplack.
Samuel Cabot, Boston.

Lawn-Hose Supporters.
C. J. Bailey & Co., Boston.

Lead—Blue.
Lead—Sublimed White.
Fieher Lead Co., Chicago, Ill.

Lithopone.
Gabriel & Schall, New York.

Naphtha.
Barrett Mfg. Co., Philadelphia.

Paris White and Whiting.
H. F. Taintor Mfg. Co., New York.

Reclaimed Rubber.
Alkali Rubber Co., Akron, Ohio.
American Reclaimed Rubber Co., Rochelle Park, N. J.
F. H. Appleton & Son, Boston.
Bloomingdale (N. J.) Soft Rubber Co.
B. H. Clapp Rubber Co., Boston, Mass.
Danversport Rubber Co., Boston.
Manufactured Rubber Co., New Jersey Rubber Co., Lambertville, N. J.
Pequanoc Rubber Co., Butler, N. J.
Philadelphia Rubber Wks., Philadelphia.
Stockton Rubber Co., Stockton, N. J.
Jos. Stokes Rubber Co., Trenton, N. J.
S. & L. Rubber Co., Chester, Pa.
U. S. Rubber Reclaiming Wks., N. Y.

AGENTS AND DEALERS.
Philip McGrory, Trenton, N. J.
H. F. Moorhouse, Paris, France.
Rubber Trading Co., New York-Boston.
Wm. Somerville's Sons, Liverpool.

Scrap Rubber.
L. Albert & Son, Trenton, N. J.
Bers & Co., Philadelphia.
P. Broomfield & Co., Boston.
W. C. Coleman Co., Rochelle Park, N. J.
Wm. H. Cummings & Sons, New York.
Theodore Hoffer & Co., Buffalo, N. Y.
A. W. Leslie & Co., Ltd., London, Eng.
Philip McGrory, Trenton, N. J.
Henry P. Rindkopf, Brooklyn, N. Y.
San Giacomo Sons, Newark, N. J.
J. Schuurmann, London.
Schwab & Co., Philadelphia.
United States Waste Rubber Co., Brockton, Mass.
M. J. Wolpert, Odessa, Russia.

Substitute.
Joseph Cantor, New York.
Massachusetts Chemical Co., Boston.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Type & King, London, England.

Sulphur.
Battelle & Hanwick, New York.
T. & S. C. White Co., New York.

Sulphur Chloride.
Acker Process Co., Niagara Falls, N. Y.
William H. Scheel, New York.
George W. Speaight, New York.
Stamford (Conn.) Rubber Supply Co.

Tire Fabrics.
J. H. Lane & Co., New York.

Tire Valves.
A. Schrader's Son, Inc., New York.

Zinc Sulphide.
Joseph Cantor, New York.
Type & King, London, England.

Zinc White.
New Jersey Zinc Co., New York.
Stamford (Conn.) Rubber Supply Co.

